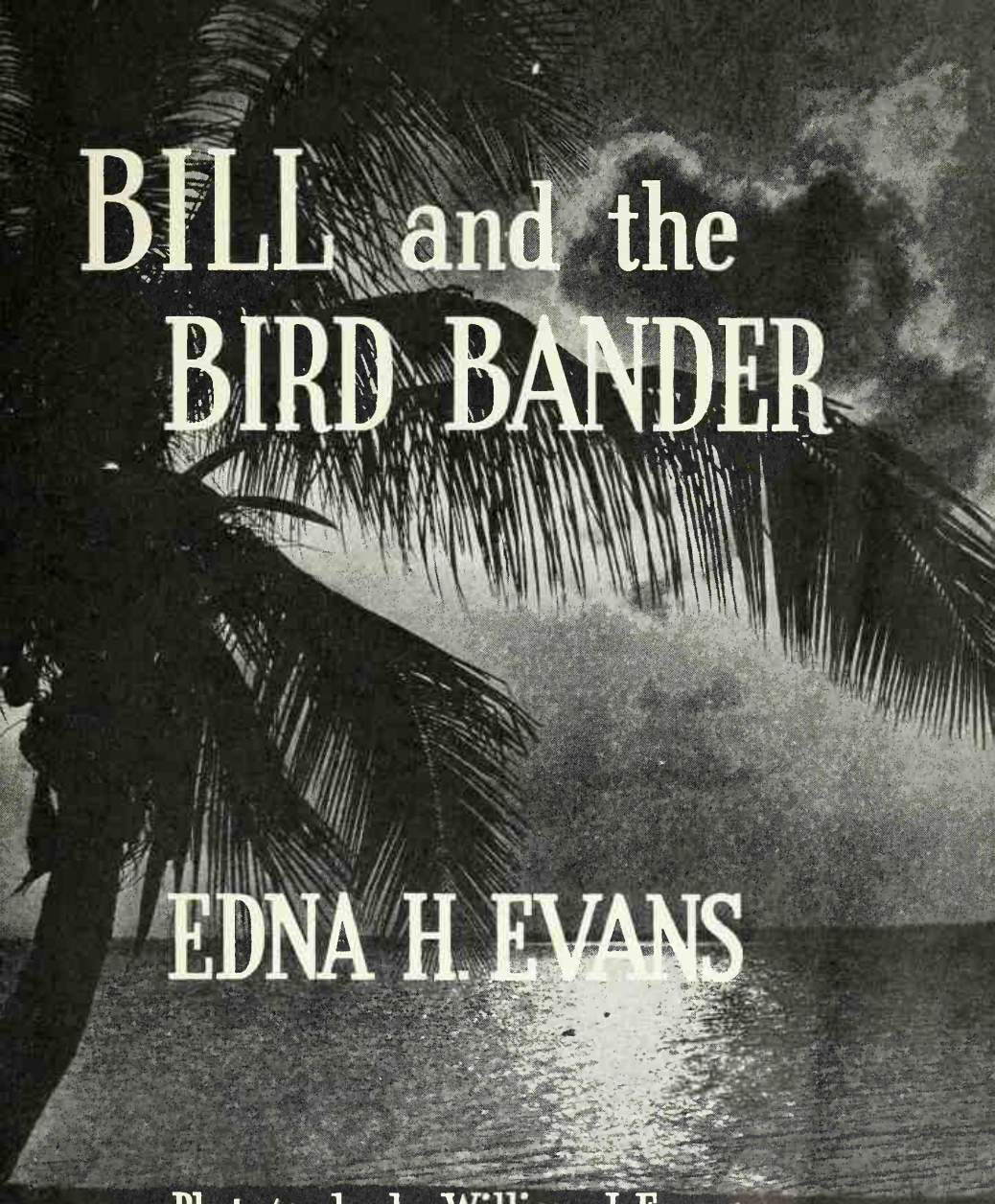
BILL AND THE BIRD BANDER

EDNA H. EVANS



BILL and the BIRD BANDER

EDNA H. EVANS

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Bill and the Bird Bander

Peter!

To

THE GROWN-UP BILL,

MY HUSBAND

FOREWORD

This book is based on personal observations covering fifteen years' residence in Florida. The author has made frequent visits to bird rookeries, and most of the incidents recorded herein have been personal experiences.

For scientific data, the author is indebted chiefly to numerous bulletins and pamphlets published by the Bureau of Biological Survey, Department of the Interior; to *Birds of America*, T. Gilbert Pearson, editor-in-chief; *Bird Guide*, *Water Birds*, *Game Birds and Birds of Prey*, *East of the Rockies*, by Chester A. Read; *Florida Bird Life*, by Arthur H. Howell; *Florida Birds*, issued by the State Department of Agriculture; *Birds Worth Knowing*, by Neltje Blanchan; *Singing in the Wilderness*, by Donald Culross Peattie; *Bulfinch's Mythology*, by Thomas Bulfinch; *The Birds of America*, by John James Audubon; "Bird Banding: the Telltale of Migratory Flight," by E. W. Nelson, which appeared in the *National Geographic Magazine* in January, 1928; and to *The Florida West Coast Bird News*, issued quarterly by the Florida West Coast Bird Club. Further information regarding bird banding was obtained from Major G. Digby Robinson, St. Petersburg, Florida.

E. H. E.

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Mr. Mocker sings for his supper

CHAPTER I

A NEW NEIGHBOR

Bill Elliot stopped sawing and watched the heavy moving van rumble to a stop in front of the yellow cottage next door. Big Mike Cavanagh swung down from the driver's seat and waved a friendly hand at him.

"Hello, Bill," he called. "What are you making?"

"A birdhouse," the boy answered. "Would you like one?"

"Not yet. But if ever I get married, I might have you build one for me to move into."

"All right," Bill answered, grinning at the thought of a two-hundred-pound Irishman like Mike Cavanagh, living in a birdhouse.

While Big Mike and his Negro helpers unloaded the van, Bill sawed and hammered away on his birdhouse. As he worked, he wondered who the new neighbors would be. He hoped there might be some boys his own age, because all his friends who lived in the neighborhood had gone away for the summer. He knew how to amuse himself, but sometimes he got lonesome.

Bill's two chief interests kept him fairly busy. He spent a good many days building all kinds of things, and as far back as he could remember, he had spent hours and hours watching and listening to the many birds that lived around his Florida beach home. When he was a small youngster, he used to wake up at night and become frightened in the dark. Then, somewhere outside his window, he would hear a mockingbird singing his sprightly night song; and even now he remembered how gay and comforting it was, and that the darkness did not seem unfriendly after all.

The birdhouse was almost ready by the time Big Mike and his helpers had finished moving the crates and boxes from the van into the yellow cottage. Wiping the sweat from his red face, the big Irishman climbed back into the driver's seat.

"Hey, Mike," Bill called, "who is going to live over there?"

Courtesy of Armstrong Roberts

Bill spent hours and hours watching the many birds

"I don't know," Big Mike answered. "I've never seen them. The name on the crates is J. T. Weston, if that's any help to you. And those crates are mighty heavy to move on a hot day like this. Of course, we're used to big ones . . ."

The big Irishman lighted his pipe and then shouted to his helpers in the rear of the van.

"Are you ready, boys?" he called.

"Yas, suh," answered one of the Negroes.

Big Mike started his engine, waved good-by to Bill, and the heavy van moved off, disappearing in a cloud of dust down the road. Bill drove the last nail into his birdhouse and looked at it critically.

"I guess it'll do," he said to himself, gathering up his tools. "I'll paint it tomorrow." But somehow he did not get much "kick" out of it, now that it was finished.

Bill stayed in the house some time after putting his tools away. He wanted something to happen—he did not know what. When he returned to the yard, he could hear someone moving about in the yellow cottage, opening windows and shifting boxes. Before long, Bill's curiosity got the better of him. Settling himself comfortably under the Turk's-cap hedge, he decided to wait for a glimpse of the people in the cottage next door.

For a long time nothing happened. Bill lay flat on his stomach in the grass, while the warm breeze

ruffled the deep green Turk's-cap leaves and made the bright-red flowers sway gently. Overhead, the long palm fronds were rustling and nodding and, almost before he knew it, Bill's head began to nod, too. In a few minutes he was asleep.

The sharp bang of a screen door broke abruptly into his slumbers, and Bill opened his eyes with a start. He could see that someone had been at work in the yard next door because a number of queer wire cages had been placed on the grass. As he looked sleepily around, he saw some hung from the tree branches, also. Bill stared at them curiously, wondering what they were for.

Suddenly there was a flash of gray and white wings, and a mockingbird alighted on one of the trees. Jerking his tail nervously, the bird cocked a sharp black eye at the cages.

"I wish he'd sing," Bill muttered quietly to himself.

It seemed almost as if the bird had understood, for he flew up to the topmost frond of the palm tree, threw back his head and burst into a rollicking song, filling the air with the mellow notes. When the concert was finished, the bird flew down to the ground and pecked at the raisins scattered outside one of those queer cages.

Each raisin lured the bird closer. Bill held his breath with anxiety when he saw that his friend was going to hop into the cage after the little pile of raisins there.

Before the boy could move or make a warning sound, the bird was a prisoner.

Bill suddenly became very angry. Why, he thought, someone must have placed those raisins there! While he was still speechless with anger, the cottage door opened and a man stepped out. Surprisingly enough, the man did not look cruel or mean. He was plump and pleasant, with a short, pointed white beard, heavy mustache, and bushy eyebrows. The sunlight glinted on the top of his shiny, bald head as he crossed the yard and looked into the cage where the mockingbird was a prisoner.

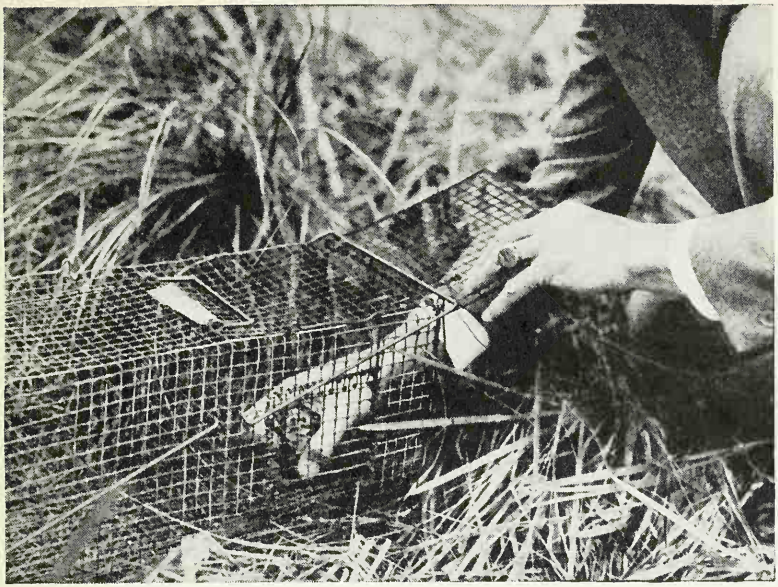
Up to this time the bird had been too busy eating the raisins to notice what had happened. Now it became frightened and began to beat its wings against the screen in an effort to escape. When the man opened the cage door and thrust his hand inside, the bird became more scared than ever.

Bill could not stand it any longer. Springing to his feet, he pushed his way through the hedge and ran toward the man.

"Don't hurt that mockingbird," he cried excitedly. "He hasn't done any harm. Please let him go."

The man swung around in surprise. Then a smile lighted his face when he saw Bill's worried expression.

"Hello, there," he exclaimed. "Where did you come from, and what makes you think I'm going to hurt this mockingbird?"



When the man thrust his hand inside the cage door, the bird became more scared than ever

"You trapped him," Bill retorted, too excited to remember that he was talking to a stranger. "I was watching through the hedge when the bird ate your raisins and got caught. Please let him go."

Just at that minute, Bill's mother came to the back door of her house. "Bill!" she called, "O Bill! Time to come in—get ready for supper."

Bill looked uncertainly from the man to his mother, and then back at the cage. He hated to go away while the bird was still a prisoner.

The man smiled, then reached down and shook Bill's hand.

"How do you do!" he said. "I promise not to hurt my prisoner and to free him soon. I'm glad to find another bird lover so soon after my arrival. Is that your mother calling? I'm sorry you have to go home."

Bill put his hand back in his pocket. There was something about the man's smile that he could not help liking. He started toward home, still uncertain about the whole thing.

"Good afternoon, Ma'am," the man said to the boy's mother, who had come close to the hedge to see what was happening. "I am Junius Weston, your new neighbor. I have come to Florida to make an ornithological study and I shall be needing an assistant. Your son seems to be interested in birds and I wonder if he would like to help me?"

Bill's mother smiled. The boy looked serious.

"How do you do," she said. "I am Mrs. Elliot. My husband and I heard that you were coming to the beach. We were talking about you just yesterday. Bill is very fond of birds, and I know he will be delighted to try to help you."

During supper Mr. and Mrs. Elliot talked a great deal about their new neighbor. They said that Professor Weston knew everything about birds. He was known to many people as an "authority." In the winter he taught in a big northern university, and in the summer he traveled and studied. He even wrote books about birds.

Bill chewed his food thoughtfully. He had not said very much all during supper.

"Dad," he asked at last, "what is an or-ni-tho-log-i-cal study?"

"An ornithological study is simply a study of birds, son," he said. "The Professor just used the scientific word for it."

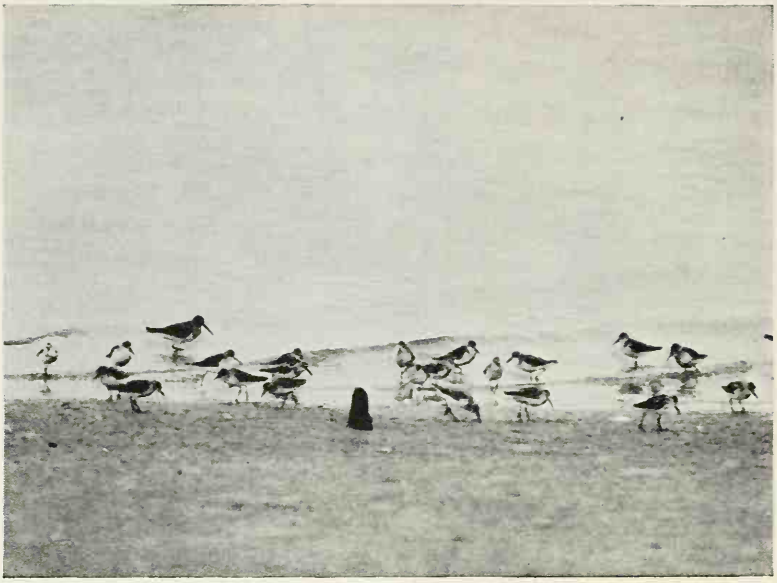
"Oh," replied the boy. "If that's all it is, I guess it wouldn't be so hard to help here and there."

Mr. Elliot smiled across the table at Mrs. Elliot.

When Bill climbed into bed several hours later, he was still worrying about the caged mockingbird, even though the Professor had promised not to hurt it. He wondered to himself why the Professor had put those cages there. He lay in bed, staring out the window at the bright star that was twinkling just below the eaves.

Gradually the soft whispering of the breeze among the palm leaves and the steady rumble of the waves as they broke against the shore lulled him to blissful sleep.

Suddenly, from close outside his window, a silver burst of song awakened Bill. A long serenade of swells and trills filled the night air. The boy drew a deep breath of relief as he listened. Nothing but a mocking-bird could produce such a nighttime melody. The Professor must have kept his promise about freeing the prisoner. Bill sighed happily and went back to sleep.



Sandpipers get their early morning exercise

CHAPTER II

BRACELETS FOR BIRDS

A ray of early morning sunlight shown on Bill's face and awakened him. Squinting owlishly at the pink-and-gold dawn clouds that still lingered in the sky, he tumbled out of bed, and climbed into his swimming trunks. His mother and father were still asleep, so the boy slipped out quietly and ran down to the beach for a before-breakfast swim.

The cool, dry sand felt good against his bare feet, and Bill wiggled his toes comfortably in it for a moment. Then he dashed wildly after a white sand crab that

scurried across his path on its eight spidery legs. He pulled up laughing when the crab finally disappeared into its round, dark hole beside a driftwood timber.

Two olive-and-white spotted sandpipers were teetering up and down along the edge of the waves, running here and there to snatch food out of the wet sand with their sharp, black-tipped bills. "Peet-weet, peet-weet," they whistled.

Bill noticed that the little birds took their morning baths and ate their breakfasts at the same time. When a wave broke and receded, they would dart after it to catch the tiny marine animals swimming about in the shallow water. Of course the next incoming wave caught them neatly and gave them a drenching, but the sandpipers didn't seem to care. They ruffled their feathers happily each time they swallowed a catch. The warm, salty water did not bother them, and they moved so fast that their tiny feet almost twinkled.

"Peet-weet, peet-weet," they whistled, scurrying a little farther up the beach as Bill came closer to the little birds.

"Peet-weet," the boy answered, sending the spray flying as he ran out through the water and fell, with a tremendous splatter, flat on his stomach into the waves. He swam about for a time, practiced the crawl stroke until he had worked up a huge appetite for breakfast, then started back toward shore.

"Good morning," a cheery voice greeted him.

Pink-and-gold dawn clouds lingered in the sky

Bill pushed back his wet hair. Professor Weston was sitting on the beach watching him.

"Hello," Bill said.

"Come, sit down and tell me about yourself," the Professor invited.

Bill looked at the man doubtfully. He thought of the bird which had sung last night. But his stomach reminded him that breakfast should be ready. He felt shy all at once. After all, the white-bearded man was almost a stranger. And what was he? Oh, yes, an or-ni-tho-log-something or other——

"Oh, come on. I won't bite you," the Professor laughed.

Obediently Bill flopped down on the sand.

"Aren't you up rather early this morning?" the Professor asked.

The boy shook his head. "No, sir, I can't sleep late in the summer. There's too much to do."

Professor Weston nodded understandingly.

"Thanks for letting the mockingbird go," Bill went on, encouraged by the nod. "I heard him singing last night. What did you catch him for, anyway?"

"I wanted to study him. Although I'm chiefly interested in shore birds this summer, I thought I'd study a few of the native land birds, too. I just trap them so I can band them. After that, I let them go. Have you ever heard of bird banding?"

Bill shook his head.

"Well, well," said the Professor. "That will never do—not if you are going to be my assistant. You are going to help me, aren't you?"

"If you really want me to, it would be grand fun. I was afraid you were only joking when you said that yesterday."

"Bill! Bill!" his mother's voice broke in. "Breakfast is ready."

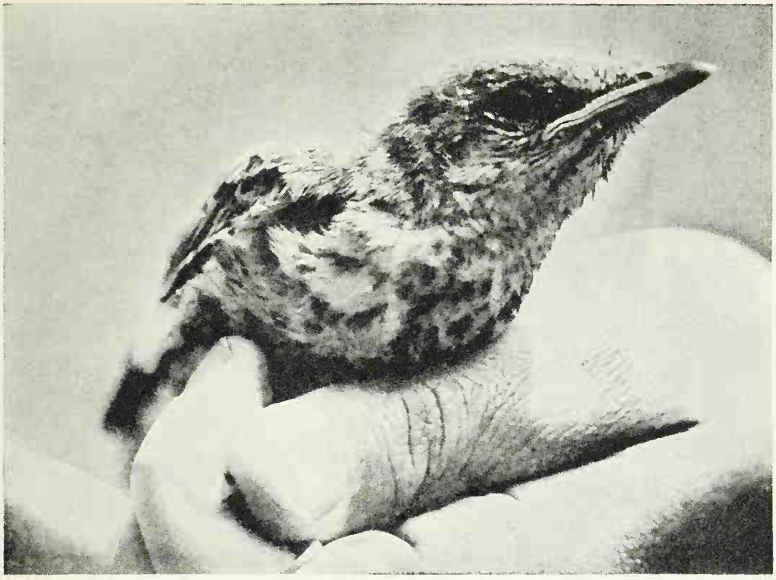
"You run along home and eat that breakfast. You're probably starved," the Professor said. "Come over to my house later on, and I'll show you some things about bird banding."

Bill could scarcely scramble into his clothes and swallow his breakfast fast enough. In a very short time he was pushing his way through the Turk's-cap hedge.

Professor Weston was standing out in his back yard looking at the wire bird cages.

"We have a good catch this morning," he said to Bill as the boy approached. "There's a blue jay in one cage and two mockingbirds in another. Yes, and bless my soul, I do believe that one of them is the same bird I caught yesterday. Clever fellow! He has come back for another free meal, and has brought his wife with him. You see, Bill, he didn't mind being caught, after all."

"How can you tell he's the same one?" Bill asked. "All mockingbirds look very much alike."

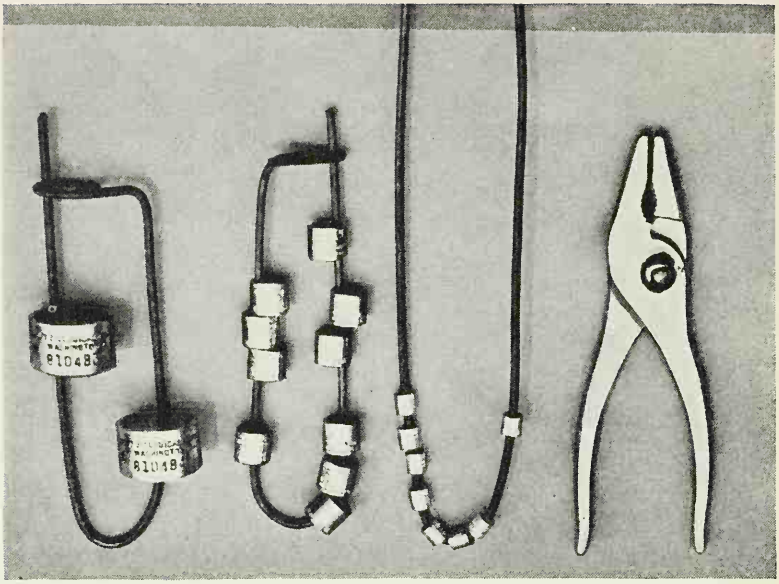


A captured baby mocker

"I can tell by the band I put on his leg," the Professor answered. "Just a minute, and I'll show it to you."

Professor Weston opened the cage door and thrust his hand inside. Gently his fingers closed around one of the birds, taking great care not to injure its wings or rumple its feathers. Surprisingly enough, the bird did not seem to mind. After a few struggles, it lay quietly in the Professor's hand.

Carefully the man lifted the bird out of the cage with his right hand. Then he laid it flat on its back across the palm of his left hand. For several moments he stroked its feathers, talking to it in a gentle, soothing



Bracelets for birds of various sizes, and pliers to put them on

manner. The mockingbird lay on his hand, with its eyes closed, and it seemed to be asleep.

"See, he's hypnotized," the Professor said. "Many birds will go to sleep like this when you turn them on their backs. This fellow will probably remain motionless for several minutes."

"May I hold him?" Bill asked eagerly.

"I'm afraid that would wake him up. See, here's the band I put on Mr. Mockingbird last night."

The Professor lifted one of the bird's slender black legs, and there, fitting loosely around the ankle, was a thin, metal band. There were numbers on the band, but just as Bill bent nearer to read them, the bird

woke up. As quick as a wink, it turned over and was gone, with a flash of white-barred wings.

"Oh," mourned Bill. "I didn't mean to scare him."

"That's all right. I just wanted you to see the band. Now you can watch me put one on Mrs. Mockingbird."

The Professor carried the cage over to the back steps and set it down. Then he took a pair of small pliers out of one pocket, and a large safety pin, strung with what looked like small metal beads, out of the other.

"Here are the bands," he explained, holding up the pin. "They are made from pure aluminum—that's the lightest metal known—and each one of them has a serial number stamped on it."

Bill looked closely at the bands.

"There's some printing on the inside, too," he remarked. "I can't quite make out what it says."

"It's an abbreviation meaning 'Notify the Bureau of Biological Survey, Washington, D. C.,' " the Professor explained. "Suppose, for instance, that next month or next year something should happen to our mockingbird. Maybe a cat will catch him, or perhaps he may bump into a wire while flying at night. Whoever finds his body should notify the Biological Survey, giving the number on his band, as well as the date and the place where the body was found.

"In return the Bureau will write the finder, telling him when and where the bird was banded. The Bureau

will also write and tell me what finally became of my little bird friend. In that way, we bird students are able to keep track of our birds and to find out a great deal about their lives, their habits, and their travels."

Bill drew a deep breath.

"I think it's wonderful," he said. "Could—could I be a bird bander, too?"

"You'll have to grow a bit yet, Bill," the Professor smiled. "Bird banders have to be at least eighteen years old."

Then, seeing the disappointed look on Bill's face, Professor Weston hurried on.

"Cheer up," he said. "You can be a big help to me when I do my banding. Here, let me show you. Take one of the bands off the pin while I lift Mrs. Mocker out of the cage. Get the top band, and be careful not to spill any of the others."

While Bill watched open-mouthed, the Professor pried the band apart and slipped it on the bird's leg. Then he pinched the ends tightly together with his pliers so that they would not get caught on leaves or twigs. When the job was completed, the bright, silvery band fitted loosely around the bird's leg, in much the same way as a bracelet.

The Professor opened his hand to release the bird. Instead of flying away immediately, Mrs. Mocker sat on his finger for several seconds, just as if being caught

and banded were an everyday event in her life. At last, uttering a sharp "chirp," she flew away over the trees.

"There," said the bird bander, grinning at Bill. "Do you still think it's wonderful?"

"Yes, more than ever. Now you can keep track of her, no matter where she goes."

"Well," answered the bird bander slowly, "I'd hardly say that, although there is a better chance of keeping track of her now than there was before. Not all banded birds are recovered, you see."

While the Professor banded the captive blue jay, he explained his last remark.

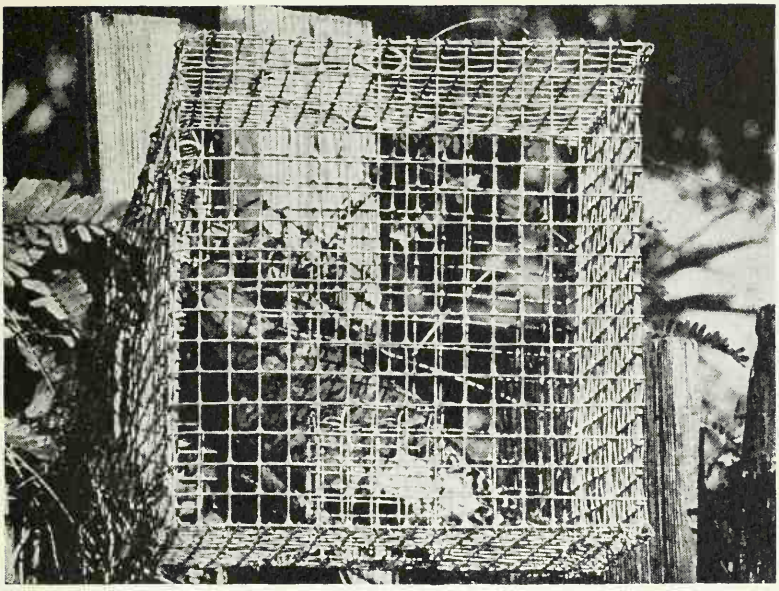
"The Biological Survey has kept a careful record of all the returns, but only about one out of every twelve banded birds is ever heard of again. A great many of them are eaten by birds of prey or by animals. Many of them die out in the wilds where no one ever finds them, and sometimes people do not report them even when they do find them. Considering all those possibilities, the one out of twelve average is rather high, I think."

"Suppose someone finds a banded bird that isn't dead?" Bill asked. "What about that? And how about Mr. Mocker, who was caught in your trap for the second time?"

"Live banded birds should be reported, too. As for Mr. Mocker, I'll keep his report card and make a mark

after his number every time he gets into the trap for a free meal. I think you've learned enough for one day, Bill. There will be a whole summer for us to work. Come back tomorrow."

Bill whistled cheerfully on his way home, as he thought of the Professor's use of "us." Well, he would show him that being eighteen was not the *only* way to become a bird bander!



A new candidate for a bird band

CHAPTER III

SOME BIRD TRAGEDIES

For the next few days Bill visited the Professor every morning, watching him band birds found in his traps.

"Trapping birds is against the law," the bird bander explained to Bill, "except in cases like this. I had to get a special permit from the government before I could."

"Why?" Bill asked in a surprised tone.

"The law was made to protect birds from people who might injure or kill them. For a number of years, now, both the national and the state governments have been making laws to protect birds and animals. Thoughtless

people were killing so many of them that some species became extinct. Others were so reduced in number that it seemed only a matter of a few years before they would become extinct, too."

"You mean there wouldn't be a single one left alive?"

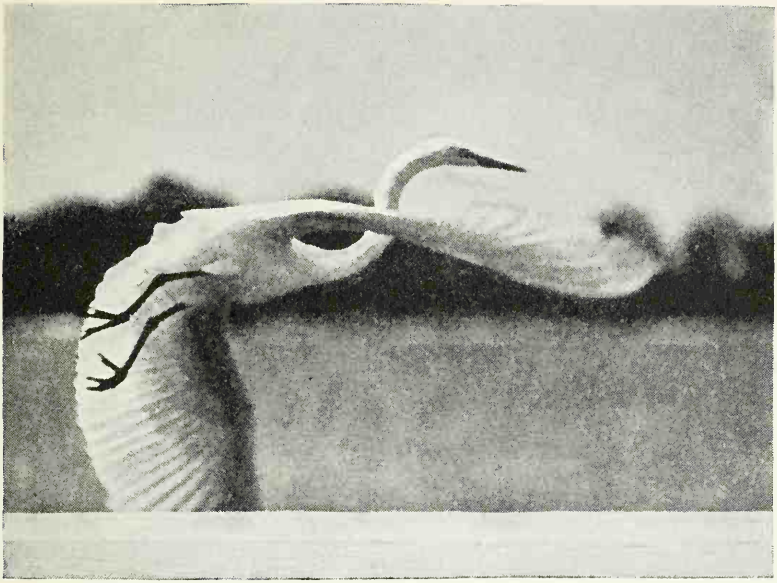
Professor Weston nodded.

"Yes, although it seems hard to believe, it is true just the same. Take the passenger pigeon, for example. Early explorers and settlers reported that there were vast numbers of these birds—billions of them—all over the country. The flocks were so huge that they darkened the sky when they flew overhead, and the noise of their wings sounded like an approaching storm. The individual birds were about the size of ordinary street pigeons, but their numbers were so great that their combined weight broke down trees and branches when they roosted at night. Do you know what finally happened to them?"

The boy shook his head.

"There is not a single passenger pigeon alive today, as far as any scientist knows," the Professor said. "The last known member of that great family died in the Cincinnati Zoological Garden in 1914. That was a good many years before you were born, Bill. The parent birds were hunted and trapped, the nestlings were killed, and the eggs were destroyed until the passenger pigeon became extinct."

"Why did people kill them?" Bill asked.



A snow-white egret takes off

"The birds were good to eat and easy to catch," the man explained. "Early pioneers really needed them for food. Then, when cities began to spring up, there was a greater demand for pigeon meat, particularly for the young birds called squabs. Hunters and trappers saw an easy chance to make money and, without thinking of the results, they actually killed the goose that was laying the golden egg. Do you see what I mean?"

"Sure," Bill grinned. "Only in this case the goose was a pigeon."

"Other birds have been destroyed for different reasons," the Professor went on, smiling at the boy's answer. "Right here in Florida, for instance, was the

scarlet flamingo, a bird with beautiful plumage and a queer black-and-orange beak. The flamingo was hunted for its feathers which were used for fans and for hat decorations. Now, with the exception of a few of these birds that are kept in captivity, there's not a one left in the state.

"The snowy and the American egrets, as well as the roseate spoonbills were faced with extinction, also. Plume hunters killed them in great numbers for their feathers. Instead of waiting until the nesting season was over, the hunters would enter the rookeries and kill the parent birds, leaving the helpless nestlings to starve."

"Gee, how can people be so cruel?" Bill exclaimed.

"I can't understand it, either," agreed the Professor, "but then I like birds. They're my friends. Ouch!" he added, as the blue jay which he was banding took a sudden nip at his finger.

"Old Mr. Jaybird doesn't like getting a bracelet," laughed Bill.

"He's going to get one, just the same. Then maybe I can keep track of the feathered hoodlum who wakes me up so early every morning by screaming 'Jay! jay! jay!' outside my window."

Bill shouted with laughter at the elderly man's imitation of the blue jay's call, and even the captive bird seemed impressed, for he cocked his blue-crested head on one side and uttered a sharp "Jay!" in reply.

"Mr. Blue Jay is quite a mimic, closely rivaling your old friend the mockingbird," the Professor remarked. "He can imitate many of the other birds—even some of the hawks. Also, he has a soft, throaty little song of his own, although few people know about it."

"I think he's mighty pretty even though he does make an awful lot of noise," Bill said, stroking the captive jay's blue-barred feathers with a gentle finger.

"Down here in Florida the blue jay's color is a little duller and he is slightly smaller than his northern relatives," the Professor continued. "Because of this, we scientists call him *Cyanocitta cristata florincola*,* while we call the northern jays *Cyanocitta crista cristata*."

"Whew! Those names are sure a mouthful," Bill gulped. "Why don't you call him just plain blue jay and let it go at that?"

"That's where the scientific ornithology comes in," the bird bander smiled. "Common bird names vary in different localities, while the scientific name, which is derived from Latin or Greek, usually remains the same. Then, too, there are several different kinds of jays. The true Florida jay, called *Aphelocoma cyanea*, has no crest at all. He is much duller in color, having more gray than blue on his feathers. Strangely enough, he is found only on the Florida peninsula."

While he talked, the Professor had been busily fitting an aluminum band on the blue jay's leg.

* See "Index to the Birds," p. 219 for pronunciations.

Mr. Blue Jay, newly banded and somewhat puzzled, perched close by

"There," he said, finishing the job and releasing the bird. "Now go and show that new bracelet to all your relatives."

Instead of flying away, the jay hopped from the bird bander's hand and perched close by in a hibiscus bush. He seemed to be examining the band intently with his sharp black eyes, and he even pecked at it a few times.

"How does it suit you, old fellow?" the Professor asked.

In reply, the jay spread his wings and flew away, screaming "Thief, thief, thief!" at the top of his voice.

"That's gratitude for you," chuckled Professor Weston, winking at Bill. "I give him a bracelet, and he calls me a thief. Come on, let's put a band on this mockingbird. Maybe he will be more polite."

"Does the mockingbird have a scientific name, too?" Bill asked. The strange-sounding words had interested him a great deal.

"Certainly, Mr. Mocker's name is *Mimus polyglottos polyglottos*. Can you guess what that means?"

Bill shook his head.

"No," he replied, "but it certainly sounds awfully funny."

"Go and get my dictionary," the Professor directed. "It's the black leather book on the dining-room table. Bring it out here and look up the word 'polyglot.' "

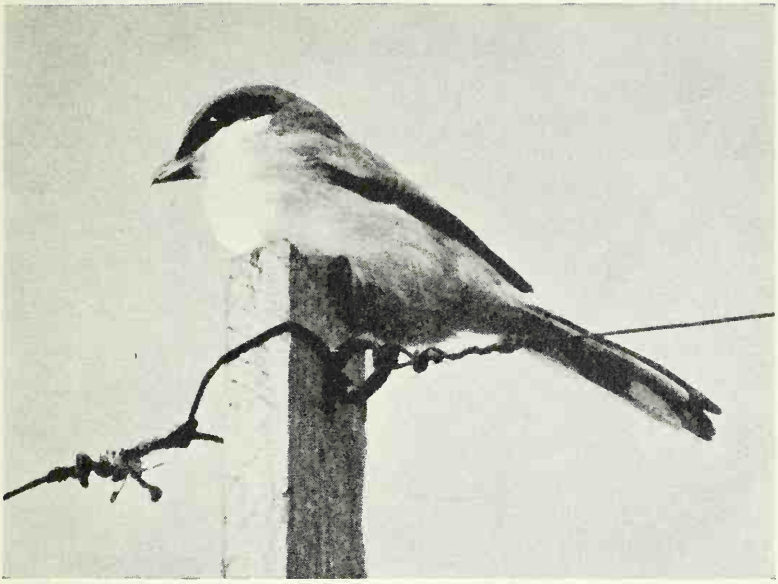
Bill began to think that the Professor was making him do things that he had to do in school. Well, being a professor was being a school teacher, wasn't it, thought Bill as he found himself leafing through the pages of the big book until he found the desired word.

"Read it out loud," the bird bander said.

" 'Polyglot,' " the boy read, moving his finger slowly along under the line so as not to lose his place. " 'A person who can use or understand several languages.' "

"I see!" he added, closing the dictionary with a bang. "Mr. Mocker knows the languages of so many of the birds that he is called *polyglottos polyglottos* to make up for it."

"That's right," the Professor grinned. "We'll make an ornithologist out of you yet."



Public Enemy No. 1 to the bird bander—the butcher bird

CHAPTER IV

BIG NAMES AMONG BIRDS

"Would a mockingbird freeze if it went up north?" Bill asked the the Professor one morning, as he stared thoughtfully at one of the olive-gray musicians in a near-by cage trap.

"Why, Bill, you should know better than that," Professor Weston retorted. "Mockingbirds live as far north as New York and New Jersey. Sometimes they're found even in Maine. They are also commonly found in Maryland, Ohio, Indiana, and Illinois. It's a great mistake to think of them solely as southern birds."

Bill looked so crestfallen that the Professor laughed.

"Cheer up, lots of people make that mistake."

"Does the mockingbird have any enemies, as the passenger pigeon and the flamingo had?" the boy asked.

"Yes, Mr. Mocker has to watch out for cats and for birds of prey," the bird bander answered, stroking his short white beard thoughtfully. "And, like all wild creatures, he has some human enemies. Years ago mockingbirds were much in demand as caged singers. Large numbers of young birds were captured and sold in the same way as canaries."

Professor Weston paused and seemed to be lost in thought. After a few minutes he continued.

"I'll never forget the first mockingbird I ever saw. My Aunt Tabitha had one in a cage in the front parlor of her brownstone Boston mansion. That bird would close his eyes and sing by the hour, while I'd sit in one of Aunt Tab's stiff parlor chairs and listen. Sometimes I'd hear him singing even in the middle of the night. I think both the bird and I felt out of place in the stuffy house, and longed for the sunny fields and green thickets. Poor old mocker—Aunt Tab's Persian cat got him one night, so he never saw his native woodlands again."

By this time, nearly all the captive birds had been banded and released. Only one mockingbird still remained in a wire trap hanging from a palm branch in

the far corner of the Professor's back yard. Suddenly the imprisoned mocker began to utter shrill little cries of alarm. At once these were drowned out by a harsh, grating note that was unfamiliar to Bill.

The boy and the Professor looked toward the cage to see a grayish bird perched on the wires. The captive mocker was crouched as far from the newcomer as the cage would permit.

"Looks as if Mr. and Mrs. Mocker are having a family scrap," Bill remarked. "Funny, I never saw mockingbirds act that way before."

"Take a closer look, Bill, and notice the difference between those two birds," his friend directed.

There was quite a difference, Bill discovered. The bird outside was slate gray, while its black wing and tail feathers were edged with white instead of being barred, like the mocker's. A patch of black feathers extended from the base of its beak back over its eyes, making it look like a burglar wearing a mask. Its tail was not so long, and its body was more rounded than the mockingbird's, while its stout black beak was sharply hooked. All the while Bill was examining it, the strange bird was trying to reach the captive inside the cage. The mocker seemed to be terrified.

"There is a lot of difference," Bill admitted at last. "What's the name of the one outside?"

"He is best known as a butcher bird," Professor Weston answered, "although he is properly called a

loggerhead shrike. He's a butcher, if there ever was one."

"You mean he kills other birds?"

"Yes, birds, mice, lizards, snakes, and other things. For his size, the butcher bird is quite a killer. Although his beak is very strong, his feet are weak, and he cannot hold his prey with them. But Mr. Butcher is clever, and as soon as his prey is dead, he impales it on a twig or a thorn and proceeds to tear it to pieces. Or, if he doesn't happen to be hungry, he just impales his victim and leaves it there until another time."

"He certainly has that mocker scared," Bill remarked, watching the terrified bird with sympathetic eyes.

"A butcher bird can become quite a nuisance around a banding station," the bird bander said thoughtfully. "Here, my cages are made of fine mesh, and the little buccaneer can't get at the birds inside, but I have known instances when the captive birds could thrust their heads between the cage wires. The butcher promptly seized their heads and pulled them off. If he comes here very often, I'll have to get rid of him permanently."

"Is he related to the mocker?" Bill asked. "They certainly look a lot alike."

"Yes, they are quite closely related, but, as often happens, their habits are vastly different. Both the shrikes and the mockers belong to the order *Passeres*,

or perching birds, and to the suborder *Oscines*, or song-birds. However, the shrike is not much of a singer. The shrike's family name is *Laniidae*, while the mocker's is *Mimidae*, or mimic."

"But I thought the mocker was named *Polyglottos polyglottos*," objected Bill.

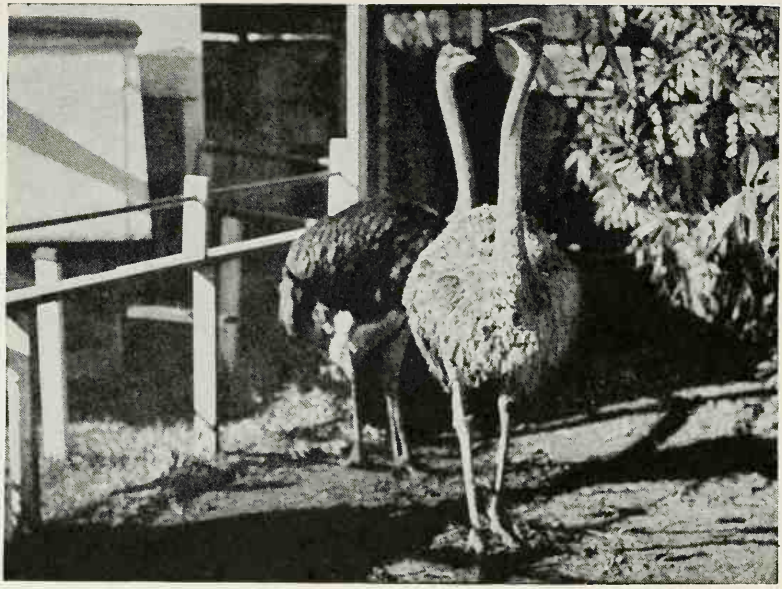
"You are right," replied the Professor, "but you must not make the mistake of thinking that those are the mocker's only names. You see, the bird families are carefully classified by scientists, just as all other forms of life. Do you want to hear more big names?"

Bill nodded. He liked this scientific stuff.

"First of all, the animal kingdom is divided into a number of different branches, depending on inside and outside structure. The group to which the birds belong is the branch *Chordata*, which includes all members of the animal kingdom having a notochord during some period of their lives. The notochord cannot be called a true backbone, because it is only a supporting rod running along the creature's back. Under this branch, is the subbranch *Vertebrata*, which includes all those creatures having real backbones."

Bill listened intently, frowning in his effort to remember everything the Professor said.

"All birds belong to the class *Aves*," Professor Weston continued, with a twinkle in his eye. "Arranged in scientific order, the class *Aves*, comes under the subbranch *Vertebrata*.



How about the ostrich?

"*Aves* is the Latin word for *bird.* Since the classification is made according to structure, there are two divisions under the main class. The first division is *Ratitae*, or raftlike. This includes birds whose breastbones are flat. Birds of this division cannot fly."

"Then how can they be birds?" Bill demanded.

The Professor smiled.

"How about the ostrich?" he asked.

"Oh," mumbled Bill. "I'd forgotten about him."

"The flying birds belong to the division *Carinatae*, or keeled," the Professor continued. "All birds found in this part of the world are members of that division.

Their breastbones are large, having a forward projection like the keel of a boat. This keel supports their strong flying muscles.

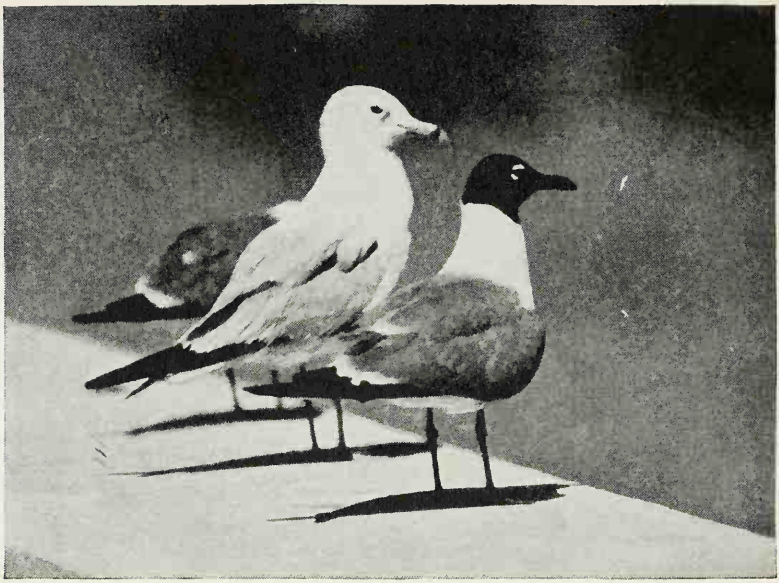
"The flying birds are divided into many orders, the orders into suborders, the suborders into families, and the families into subfamilies. Each bird also has its own distinguishing generic and specific name as well as its popular or common names."

"Are all living creatures classified like that?" asked Bill. His head was swimming.

"Certainly," his friend answered, "both the animal and the plant kingdoms. Every true scientist must know the classifications in his particular field."

"I don't see how you can remember all those awfully big names," marveled Bill, as the bird bander and he approached the cage.

"It has taken nearly a lifetime to learn them, son. Come on, let's rescue that mocker before the butcher bird scares him to death."



A ring-billed gull and a black-headed laughing gull

CHAPTER V

ENTERTAINING AN ORNITHOLOGIST

"Bill, do you think Professor Weston would like to come to have dinner with us today?" Mrs. Elliot asked her son one bright Sunday morning.

"I'm sure he would," the boy answered promptly. "May I go now and ask him, Mother?"

"Yes, run along, but come right back," Mrs. Elliot warned, smiling at his eagerness.

The Professor gladly accepted the invitation, and Bill returned home in triumph to help his mother set the table and carry in the dishes.

It was an excellent dinner, and Bill felt pleasantly grown-up as all four of them sat at the table talking about many things. The Professor told a number of interesting stories about his travels in other parts of the world.

"Bill certainly is interested in your bird-banding activities," Mr. Elliot remarked when dinner was almost over. "He tells us all about them when he comes home. It sounds like fascinating work."

"I've been tempted to climb through the hedge to watch you, myself," added Mrs. Elliot. "Won't you tell us more about your work, or do you object to talking 'shop' on Sunday?"

Professor Weston smiled.

"I may not be a man of one subject, Madam," he said, "but I certainly have become a man with one major interest. I'm always ready to talk about birds and bird banding. It really is surprising that I haven't started long before this."

"Suppose we go out on the porch before you begin," Mrs. Elliot suggested. "We can eat our dessert out there."

"Where shall I start?" the Professor asked, when they were all comfortably settled on the cool, screened porch.

"Why not tell us how bird banding began in the first place?" Mr. Elliot answered. "Who thought of it, and how long has the work been going on?"

"Bird banding is a comparatively recent development," the Professor related. "But man's interest in birds goes back many thousands of years, and it was this interest that finally brought about the banding movement.

"For centuries, the great bird migrations every spring and fall were unsolved mysteries. Fantastic stories were invented to explain what became of the birds in the winter time. Some people thought that birds spent the winter sleeping in hollow trees. Others said they buried themselves in muddy stream banks during the cold months."

"When did people begin to find out the truth?" Bill asked.

"I'm afraid that question can't be answered definitely, Bill. However, we do know that the Romans understood the homing instinct of birds, for they made use of their knowledge during the great chariot races. As soon as the races were over, sportsmen tied the colors of the winning teams to birds brought to Rome for that purpose. When the little messengers were released, they would carry the news quickly to all parts of the country."

"Did they use carrier pigeons?" Mrs. Elliot asked.

"Yes, pigeons were used that way, and so were swallows and several other kinds of birds. The Romans, and the Greeks also, used bird flights as a basis for reading the future. The appearance of an eagle before a battle

always meant victory for the Roman legions. The appearance of a crow or a vulture meant defeat. Even Julius Caesar was very superstitious about bird omens."

"Did the Romans do any real bird banding?" Bill asked.

"Not so far as we know," was the answer. "True scientific research did not develop until after the Dark Ages. Occasionally, people who were interested in birds would catch them and cut their feathers or mark them with bright colors so that they could easily be recognized again. Sometimes small pieces of parchment or leather, bearing a few written words of identification, were attached to a bird's leg. But these scattered efforts gave little definite information.

"The first actual record of a banded bird was made in 1710, when a great gray heron, bearing several rings on its leg, was captured in Germany. One of the rings had been placed on the bird in Turkey."

"Was that when bird banding started?" Bill broke in.

"I'm afraid not," his friend answered. "More than a hundred years had to pass before any definite banding work was done. In 1899, a Danish schoolteacher began a systematic banding record of storks and starlings. He was so successful, that the work spread to Great Britain, Sweden, and other parts of Europe, as well as to the United States."

"Didn't Audubon do any banding work?" Mr. Elliot asked.

The Professor nodded as he turned to Mr. Elliot.

"Audubon placed silver cords on the legs of a brood of phoebes which were hatched near Philadelphia in 1803, but no one else did any work along this line for nearly a century."

"Who was Audubon?" Bill asked. "I never heard of him."

"He was a great American naturalist who studied birds and painted beautiful pictures of them," the Professor answered. "Some day I'll tell you more about him."

"The Government directs bird banding work now, doesn't it?" Mr. Elliot asked.

"Yes, the Biological Survey, then a branch of the Department of Agriculture, took over the work in 1920. Although the Bureau is now a part of the Department of the Interior, it has directed the work since that time," the bird bander explained. "It issues special permits to bird students like myself, who are interested in the work. I believe there are nearly twenty-one hundred of us in the country now. The Government supplies us with bands and, in return, we send in data on all the birds we band. The Bureau files this for future use. I understand that more than two and a half million birds have been banded since 1920."

"Do you use the same kind of band for all birds?" Mrs. Elliot asked. "I don't see how you could band a

A bird of much travel, the wild duck, shows off his band

small bird like a warbler in the same way that you might band a large bird like a pelican."

"The bands come in ten different sizes," the Professor explained. "They range from those small enough to fit tiny birds like wrens and warblers to large ones, almost an inch across, designed for big birds like eagles, herons, and pelicans. The hummingbird is the only one that is too small to be banded in the regular manner. However, I have cut down several of the smallest bands and made them fit the tiny hummers."

"It certainly must be interesting work," remarked Mrs. Elliot.

"A new banding venture was started not long ago," the Professor said, "and I am very much interested in its development. With the ordinary aluminum bands, it has always been necessary to capture a bird before obtaining any of the information carried on its band. To overcome this difficulty, two colored celluloid bands are being used in addition to the regular metal ones.

"The experiment was started on more than ten thousand fledgling herring gulls, banded in their northern breeding grounds. Gulls are great travelers, and observers in all parts of the country have been asked to watch for them. Position of the three bands is important, for aluminum-over-blue-over-red will indicate one gull colony, while aluminum-over-red-over-blue will denote another. With the proper co-operation, the experiment should be very successful."

A herring gull—triple banded

"Just what sort of information can be gathered through the banding program?" questioned Mr. Elliot. "The possibilities seem almost endless."

"Within reason, they are endless," the Professor nodded. "We have been able to learn much about bird migration, and we can now make accurate maps of the routes followed by different species of birds on their northern and southern flights.

"We can also keep track of individual birds that wander far from the beaten track. A number of years ago, I banded a group of common terns nesting along the coast of Maine. Four years later, one of those same terns was found dead by a Negro, who was

paddling his canoe up one of the branches of the Niger River on the west coast of Africa."

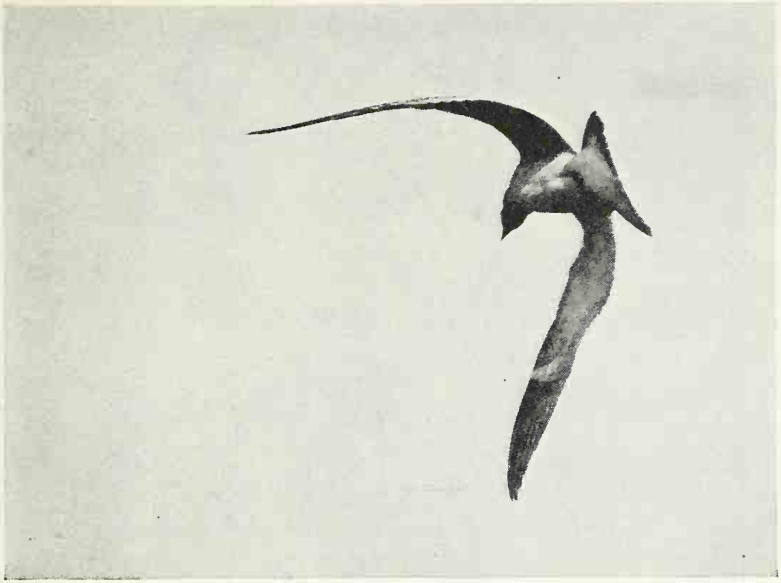
"My, what a world traveler that bird was," exclaimed Mrs. Elliot.

"We can also tell how fast birds travel," the Professor continued. "I believe an unusual record for fast flying was made by a mallard duck banded in the state of Wisconsin. Four days later, the same duck was shot in South Carolina, almost a thousand miles away.

"By means of the bands, we can also tell how long birds live. Often years elapse between the time they are first banded and the time when they are recaptured. I believe that twelve years is the long-life record established by a pintail duck. Mockingbirds, robins, and blue jays have been known to live at least six years. Without banding them, we would have no means of discovering these facts about our feathered neighbors' more intimate habits."

"Do all birds have to be trapped before they can be banded?" Bill asked. "It must take an awfully long time to catch and band them all."

"Most of the smaller songbirds must be caught in traps," the Professor replied, "although sometimes young birds are banded before they are old enough to leave their nests. The Biological Survey does not encourage much nest hunting, because the bander may lead other less friendly visitors, like skunks, squirrels, and weasles, to the nest.



His eye on a fish, this gull makes a sharp turn in flight

"However, when birds nest in isolated colonies, like the gulls, terns, pelicans, herons, cormorants, and others, they are safe from enemies who would prey upon them and can be banded in large numbers. I plan soon to visit some of the rookeries near here for that purpose myself."

"Oh, I'd like to go with you," Bill interrupted.

Mrs. Elliot shook her head reprovingly at her son. "You must not make a nuisance of yourself, Bill."

"Don't scold him, Mrs. Elliot," the Professor laughed. "I'll be glad to take him along. He's a first-class helper."

"Doesn't trapping injure a good many of the birds?" Mrs. Elliot asked, "and doesn't it frighten them away?"

"Bill and I haven't found that to be the case, have we?" The bird bander winked at his helper.

"I should say not," the boy answered emphatically. "Seems to me, there are more birds around than ever before. I guess the food the Professor puts out is what brings 'em."

"It's the food and the protection they get," the man explained. "I take great care to see that no cats disturb them, and my feathered visitors seem to know that they are welcome here. Of course, occasional accidents are bound to happen; but in all the years that I have been banding birds, I have never known one of them to be injured through my handling."

"Bill says you often find the same bird in your traps several times," Mr. Elliot said. "Is that unusual?"

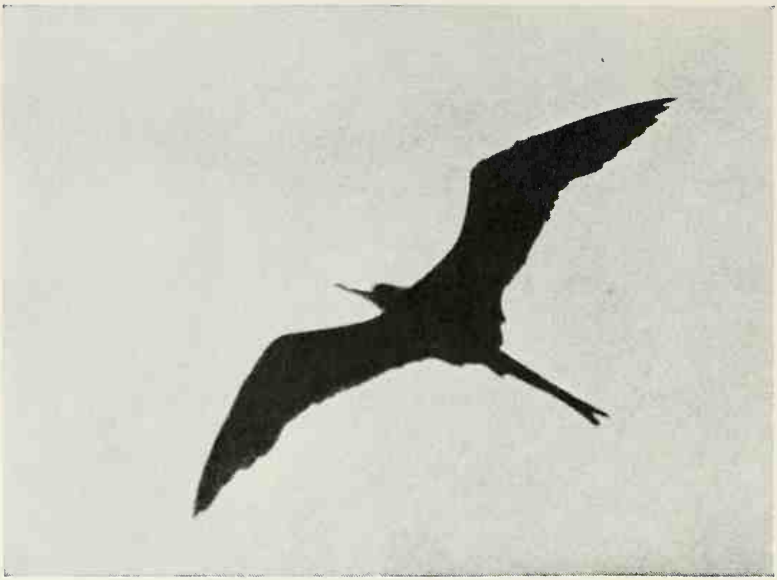
"I'm afraid some people might accuse me of breaking down the birds' morale," the Professor laughed. "Sometimes the little chaps seem to prefer getting a free meal in a trap rather than go hunting for themselves. Birds have been known to enter a trap as many as a hundred times during a season, and some of them even take naps while waiting to be released."

"Do you always use the same kind of trap?"

"Oh, no, different types are used to catch different kinds of birds, and the bait must be varied also. The

Biological Survey tested many traps before recommending any of them. Cage traps are best, while nets and snares that hold a bird too securely are not approved for general use."

The Professor smiled thoughtfully before he went on. "Those cage traps are all very well, but sometimes they are not very discriminating. Too often they take in undesirable visitors that cause the bird bander considerable embarassment. I have found small skunks in my ground traps several times, and once, when I was working in Georgia, I found a five-foot rattlesnake waiting for me!"



Like a feathered airplane the frigate bird flashes by

CHAPTER VI

FEATHERED AIRPLANES

"How would you like to go exploring?" Professor Weston asked his young helper one afternoon a few days later as they strolled slowly along the beach, watching a long line of pelicans fly in single file toward one of the distant green islands that dotted the bay.

"Suits me," Bill answered promptly. "What are we going to explore?"

"I want to find out just which of those islands are bird rookeries," the Professor explained. "I've noticed great flocks of birds circling above them every morning.

Do you know any of the skippers down around the docks who might have a boat that we would go in?"

The boy scratched his head thoughtfully.

"Cap'n Tim Cavanagh has a pretty nice boat called the *Silver Queen*," he said. "Sometimes he takes people out fishing in it. Cap'n Tim is Big Mike's brother, and I've heard Dad say that he's supposed to be the best fishing guide in these waters. Maybe we can get him to take us out."

"We'll see about it right now. Come on, we're already halfway down to the docks."

The fishing season was slack, and Cap'n Tim was glad to act as skipper for the exploring party.

"I give you my word, sir, there are birds enough on the island even to suit Bill," he told the Professor. "You will find regular bird cities on some of the islands, and the nests fairly cover the bushes. I'll be waiting for you in the morning."

That night Bill lay in bed, blinking up at the darkness and thinking about the exploring trip. He could scarcely wait to get started, but very soon his eyelids began to grow heavy. Almost before he knew it, he was asleep.

C-rash! Bang! Thud!

A terrific and ear-splitting racket shattered the stillness, and Bill woke with a start. He sat up in bed and frowned as the noise continued. He knew what the

trouble was, all right. A tropical midsummer thunderstorm was raging outside. Heavy black clouds covered the entire sky, blotting out the stars and the moon. The wind howled mournfully around the corners of the house, and great drops of rain fell spattering against the roof.

Jagged flashes of lightning were darting across the sky, illuminating the thick clouds with a ghostly, silver-blue light. The thunder crashed and rumbled until it made Bill's ears ache.

"I hope this storm doesn't spoil everything," he muttered, thinking of the Professor and the exploring trip across the bay that they had planned for the morning.

Things did not look too well at that moment. He could hear the waves pounding against the beach, while the lightning continued to flash and the thunder roared almost constantly. The rain poured in torrents from the wide eaves of the cottage, and the wind moaned dismally. There was nothing for Bill to do but lie down and wait. At last, in spite of the storm and the noise, he fell asleep.

When he next awoke, the sun was shining brightly, and not a trace of the storm remained. The world had a clean, freshly laundered look. The bay lay calm and quiet, with the sunlight sparkling on it, and there was not a cloud in the sky. Bill hopped out of bed in a hurry.

"What's on your program for today, son?" his father asked, when the boy slid into his chair at the breakfast table.

"The Professor and I are going exploring to look for bird rookeries," Bill answered. "We're going out in Cap'n Tim's boat."

"Sounds grand," said Mr. Elliot. "I'd go with you if I didn't have to go to work this fine morning. That Irishman will find birds for you, if any man on the beach can."

"You will be careful on the boat, won't you?" Mrs. Elliot cautioned. "I don't want you to fall overboard."

"Oh, he'll be all right," Mr. Elliot told his wife. "He's old enough to take care of himself. You mustn't worry."

As soon as he had finished eating, Bill scrambled through the Turk's-cap hedge and knocked on his friend's back door. The Professor was ready, and in a very short time they were climbing aboard Cap'n Tim's boat to begin their explorations.

A bewildering maze of islands dotted the blue surface of the bay, and Cap'n Tim laid his course so as to come as close as possible to them. Every one of the little islands looked interesting, and almost all of them seemed to have birds perching in the thick bushes that lined their shores.

"Do you know what kind of bushes those are?" the Professor asked, as they sat watching the islands drift lazily past.

"They're called mangroves," the boy answered, "but that's all I know about them."

"Mangroves are very interesting and unusual plants," Professor Weston said. "They are great land builders. Year after year, they go marching out into the waters of the bays and bayous, taking root wherever they can. Once the plants have a foothold, the waves wash sand and mud, shells and driftwood around their roots. Before long new land has been made.

"Many of the Florida keys have been formed in this manner. It doesn't take very long to build a sizable island. As the land grows, the mangroves grow, too. Some of them become regular trees, with gnarled branches and strong, twisted trunks. They make excellent places for birds to build their nests."

"Just look at all the birds on that island," Bill broke in excitedly, pointing to a small key. "The bushes are almost black with them. What kind are they?"

"They're frigate birds," was the answer. "Captain, can't we pull in closer to them?"

Obediently Cap'n Tim swung the *Silver Queen's* nose toward the little island. In a few seconds he turned off the motor.

"Sorry, sir," the Irishman called. "I can't get any closer. The tide's pretty low, and I don't want to run aground."

Bill's heart sank when he heard that, because they were still quite a distance from the island. Looking over

He saw two frigate birds in the bush

the side of the boat, he could see great patches of seaweed waving gently below the surface of the water, while here and there a bare patch of yellow sand was visible. Running a boat aground was a serious matter, Bill knew, but he couldn't help feeling disappointed.

"I'm mighty sorry, my boy," Cap'n Tim said, seeing Bill's downcast look. "I can heave to and anchor for a while so you can watch the birds through my field glasses."

"Good," said the Professor. "We can do quite a bit of bird study that way. Later, we can come back in a smaller boat and explore the island. This was just to be a preliminary trip, anyway."

When Cap'n Tim tossed his heavy anchor overboard, its noisy splash frightened the birds, and with shrill, harsh cries they took to the air. More and more rose every second, until the sky was black with them.

"Gee, I never saw so many birds before," cried Bill. "Wish I could get a good, close look at them."

"Here, lad, take the field glasses, and you can even see their tonsils," Cap'n Tim said.

Bill had never used field glasses before, and it took him several minutes to get them focused properly. When he finally got them adjusted, he felt as if he could almost reach out and touch the birds—the glasses brought them so close.

By this time the birds were getting over their fright, and many of them were returning to the bushes. Their

wings and bodies were long and slender, and their tails were deeply forked. They were graceful and dashing in flight, performing the most difficult aerial maneuvers with apparent ease. Training his glasses on the birds perched in the bushes, Bill could see that some of them had all-black, glossy feathers, while others had white breasts and sides. They all had sharp, hooked beaks and very short legs.

While he was watching one of the black feathered birds, Bill saw a scarlet patch appear on its neck. The patch spread and spread, puffing up like a red toy balloon, until it extended out to the tip of the bird's beak.

"What in the world is the matter with that bird?" he exclaimed in surprise. "He looks as if he's going to burst."

"He's just puffing out his pouch for you, Bill," Professor Weston laughed, focusing his own glasses on the bird. "All male frigate birds have red pouches, or air sacs, on their throats. They can inflate the pouches just the way that fellow is doing, by means of tubes connected with their windpipes. You see, the male birds are the all-black ones, and the females are the ones with the white feathers."

"Do they have nests over there on the island?" Bill asked eagerly.

The Professor shook his head. "No, they are through nesting for this year. They built their nests and reared their families in February, down on the Bahama Islands.

Although they rarely, if ever, nest in the United States, they migrate up here in great numbers when their nesting season is over. You'll find them all along the southern coast, from Florida to California, and sometimes they travel as far north as Nova Scotia."

"Florida must be a fine place to study birds, since they come here both winter and summer, isn't that so, sir?" Cap'n Tim broke in. The Irishman had been listening to the Professor's explanation with a great deal of interest.

"Yes, the state has quite a cosmopolitan bird population," Professor Weston answered. "It's a fine headquarters for bird study, because both the northern and the southern birds come here. Florida is also an important point in the flyways of many migratory birds, because they come here before flying across the Gulf of Mexico to Central and South America. Then, on their way back north, they stop here again. I believe that more than three hundred fifty different kinds are to be found in the state, including both native and migratory birds."

Cap'n Tim pushed back his white skipper's cap, scratched his sandy hair, and whistled.

"Saints above! That's a lot of birds, sir," he cried. "If 'twas anyone else but you that said it, I don't think I'd believe it."

"What else do you know about the frigate birds?" Bill asked. He had become a walking question mark.

A flock of birds on the wing—a common sight to Bill

"Like several other birds we'll become acquainted with later, frigate birds belong to the order *Steganopodes.* That means *covered foot,*" the Professor began obligingly. "All four of their toes are joined by webs, while most other birds have webs between only three of their toes.

"Their bills are horny and usually hooked and hard at the tip. Their mouths can be opened very wide, and their tongues are small and knoblike. Each bird has a throat pouch—you've already noticed the frigate bird's pouch."

"What do they eat?" Bill wanted to know. "Do they catch fish like the other shore birds?"

"I'm afraid the frigate bird is somewhat of a bully," the Professor smiled. "Occasionally, he snatches fish from the water, but he gets most of his food by robbing gulls and terns, chasing them and forcing the smaller birds to drop their catches. Then the frigate bird swoops down and seizes the fish as it falls."

"They certainly can fly," Bill said, as he trained his glasses on one of the birds that was sailing with outstretched, motionless wings, high up in the sky.

"Yes, the frigate bird is a regular feathered airplane. He can sail motionless like that for hours. He's completely at home in the air. But, he can scarcely walk on land, and he is a very poor swimmer because of his small feet and long tail.

"They're extremely lazy birds and I have seen them sleeping, with their heads under their wings, several hours after sunrise. Well, I guess that's about all there is to say about them."

"Oh, but you haven't told me what their nests are like," the boy objected.

"You certainly want to know everything," the Professor smiled. "The frigate bird's nest is a rough affair made of sticks and built in a low mangrove bush.

"Now, before you can ask me another question, I think it's time to head for home. We'll come back again tomorrow."

One fish is a mere drop in the bucket for a pelican

CHAPTER VII

PELICANS AT HOME

Next morning, with the help of Cap'n Tim, Professor Weston rented a rowboat and an outboard motor. Bill watched with great interest while the boat's owner explained how to crank and adjust the motor.

"I think I can manage it now," the Professor said, after watching the boatman's careful demonstration. "I've used many an outboard in my day. Like noses, some of them run, and some of them do not."

"And I've always said that an outboard motor is as touchy as a mule," Cap'n Tim said, chuckling.

"I'll do my best to make this one work," the Professor laughed. "Hop in, Bill. Let's be off."

In a few minutes the boat was heading out across the blue water toward the island that Professor Weston had selected as the best place for study. The motor purred like a giant cat, and conversation was impossible.

Bill moved forward to see that the lunch box and thermos jug were stowed properly in the shade of the bow decking, along with the Professor's notebook and bird-banding equipment. Then he sprawled out across the bow, watching the spray go swirling past the boat's V-shaped nose.

When he looked ahead, Bill could see a cloud of birds circling lazily above the island, while countless others were perched in the dark green mangrove bushes that lined the shore. They were still several hundred feet out from the narrow strip of beach when Professor Weston shut off the motor and let the boat drift.

"I don't want the noise of the motor to disturb the birds," he explained when Bill looked around inquiringly. "We'll have to pole in from here."

While each of them took one of the oars and began to shove the boat slowly through the shallow water, the Professor mapped out his plan of action.

"I think we will devote today to pelicans, because there certainly are a lot of them on the island," he said, pointing to the great, long-beaked, brown birds perching in the bushes, their white heads standing out sharply

against the dark background. "I brought plenty of large bands, so we can go right to work."

"Are pelicans the only kind of birds we'll find here?" Bill asked.

"Oh, no, there are probably cormorants, several kinds of herons, and perhaps even some egrets," the Professor answered. "We'll take them a day at a time in order to do a thorough job."

Some of the birds became frightened as the boat approached the island. Bounding up from their perches, they took to the air. The beat of their broad wings made an eerie "whump-whump, swish-swish," sound while other equally strange noises drifted out from the dense tangle of roots and branches.

As soon as the boat slithered against the shore, Bill vaulted over the bow and ran across the sand to make the painter rope fast around a thick mangrove stem. Then he looked around in wonder.

"A bird rookery is a queer place," the Professor said quietly, stepping ashore and standing beside the boy. "It seems almost spooky until you become accustomed to it. I don't believe there is another place in the world that will give you exactly the same sensation."

"I'd hate to be left alone here at night," Bill said.

"I agree with you," returned the Professor. "Come, we have work to do."

The Professor gathered up his tools and his notebook, made sure that the boat was firmly tied, and then, with

When a new bird flashes by, a fence is no obstacle to Bill

Bill at his heels, he plunged into the dense mangrove tangle. The bewildering maze of roots and branches all around them and the damp, soggy ground underfoot made progress extremely difficult.

Suddenly the Professor stopped and pointed upward.

"Look there, Bill," he directed.

In the bushes above his head, the boy saw a large bird's nest, at least two feet across. It was made of sticks and twigs, loosely woven and piled together in a clumsy fashion. As he looked around, Bill saw other nests—more than he had ever seen at one time before.

"Here's where we go to work," the Professor said. "Can you climb up and see what is in them?"

"Sure thing," answered Bill, beginning to scramble up into the bush. Its many roots and branches made climbing rather difficult, but soon he was able to look down into the nest. He saw that it was simply a flat platform, without any sides, and in it were two big, chalk-white eggs. They were twice as large as hen's eggs, and their shells were rough and powdery looking.

"There are two eggs in this one," he called down excitedly.

"Good," came the answer. "Come down, and we'll move on a little farther until we find some nests with young birds in them."

Bill gave a howl of delight the second time he climbed up to examine a nest.

"There are two baby birds in this one," he shouted.

"Whump-whump!" went the mother pelican's wings

"Fine," called back the Professor, chuckling at the boy's excitement. "But don't make so much noise."

While the Professor was getting out his banding tools, Bill stayed in the bush and stared at the baby pelicans. They were the ugliest, funniest creatures he had ever seen. The birds were as large as bantam chickens, and their bodies were covered with a fine, snow-white down. Like all pelicans, their beaks were long and ungainly, making the little birds seem top heavy and out of proportion. When Bill tried to move closer to the nest, the baby birds opened their long beaks and hissed at him, backing as far away as the edge of their nest would permit.

While Bill was watching the youngsters, an adult pelican flew over the nest several times and finally, with a "whump-whump" of her broad wings, the mother bird settled down on a near-by mangrove bush. She did not attempt to defend her nestlings. She just sat and watched Bill with round, unblinking eyes.

Bill stared back. Although the big brown birds were common sights around the fishing docks, it seemed queer to the boy to be able to study one of them so closely. The pelican's beak was nearly a foot and a half long, with a sharp hook at the end. A brown pouch of leathery skin hung from the lower side of this beak. The bird's head was white tinged with gold, its throat was white, and the back of its neck was a rich chocolate brown. The rest of its body, wings, and tail were brown tinged with silver-gray, while its big webbed feet were black.

"Come on down, Bill," Professor Weston called. "Let's move back a little, and see what she does."

The boy scrambled down from his perch, and together they moved a short distance away. In a few minutes Mrs. Pelican hopped awkwardly over to her nest.

"For a minute I was afraid she was going to go for me," Bill whispered. "A couple of times birds got awfully mad when I tried to look in their nests. Mockingbirds and wrens can put up a good scrap. Some of them have even pecked me good and hard."

"Sea birds don't often act that way," the Professor answered. "They just fly around excitedly for a time and then they seem to forget all about it. These large birds do not have as many enemies as the smaller ones do. Out here on the keys their worst enemies are high winds and storms. They don't have to fight to defend their young."

"I'm glad they don't," Bill answered. "I'd hate to have a pelican start after me with that long beak. He could do a lot of damage if he wanted to."

"Look now," the Professor whispered.

The baby pelicans were standing up on their clumsy webbed feet and, at the same time, opening their beaks very wide. They made a lot of strange, harsh noises, although their mother did not utter a sound. Instead, Mrs. Pelican opened her great beak, and both babies thrust their own long beaks inside it. Bill's mouth dropped open in surprise.

"Gee whiz!" he exclaimed. "Is she going to swallow them?"

"No, indeed, she's feeding them," the bird bander answered. "Watch closely, and you can see how she does it."

Just then one of the baby pelicans took his head out of his mother's mouth, and Bill could see that he was gulping hard in order to swallow his dinner. While they watched, Professor Weston explained how the parent bird catches a fish, swallows it, and partly digests it.

Then, when the adult bird goes back to its nest, it returns the partly digested food from its stomach into the base of its pouch. By reaching down inside the parent's mouth, the baby bird is able to get its food.

"You see, Bill," the Professor concluded his explanation, "since pelicans have such big, clumsy beaks, it would be impossible for them to feed their nestlings as most birds do. Strangely enough, the tiny hummingbirds feed their babies in much the same way, only, in their case, the adult bird thrusts its beak down inside the baby's mouth and pumps the partly digested food into its stomach. Pigeons also partly digest the food before giving it to their youngsters.

"The very young pelicans could not digest the whole fish—scales, bones, and all—that forms the pelican's entire bill of fare. But, as the baby grows older, the parent does less and less of the digesting, until at last the baby is able to take over the entire process by itself."

For the rest of the morning they worked hard, placing bands on the young pelicans. These bands were much larger than the ones Professor Weston had used on the songbirds. The pelican bands were nearly an inch across, and Bill could slip his thumb inside them, with plenty of room to spare.

Each time the Professor banded a bird, he carefully listed the number in his notebook, along with other information needed by the Biological Survey. Bill did

all he could to help, climbing into many of the bushes in order to locate more nests with young birds in them. It was long past lunchtime when the work was finished, and both the boy and the man were ravenously hungry.

"Come on," the Professor called at last. "I've used up all my bands. Let's go back and tackle that lunch."

Before eating, Bill and the Professor washed their hands and faces in the warm salt water.

"Don't forget to scrub behind your ears," the bird bander warned, grinning at Bill. "I promised your mother I would take good care of you, and I can't let you slip up when it comes to washing."

"You're lucky because you have whiskers and don't have to wash so much of your face," the boy grumbled, splashing the water over his head. "I'm going to have a beard a yard long when I grow up."

"My whiskers don't help much," the Professor retorted. "Remember, I'm bald, and I have a lot of face to wash on the top of my head."

"Wow!" the boy yelped suddenly. "There's a crab in the water. He just pinched me. I'm not going to wash any more."

"I guess it's a good thing crabs don't live in bathtubs. You'd never wash then, would you?"

"I should say not. Say, that would be a great excuse. Maybe I'll put one there when I get home."

"No time for crabbing now," the Professor laughed. "I'm starved. Come on, let's eat."

"I'd like to know more about pelicans," Bill said, as he munched the last sandwich blissfully. "Now that I've seen them nesting, I think they're the most interesting birds around here."

"They are mighty interesting," the Professor agreed. "Like frigate birds, pelicans belong to the order *Steganopodes*. There are about twelve different kinds of pelicans in the world; but only two kinds, the brown and the white, live in the United States.

"Brown pelicans, like the ones on this island, are found all along the Gulf coast and sometimes on the North Atlantic coast and in the Middle West. The white pelican is not often seen in the East, because it nests in the lake regions of British Columbia, North Dakota, and Utah, and spends the winter in Southern California. Its feathers are all white, while its beak and feet are yellow."

"Are the white ones as big as the brown ones?"

"The white ones are larger. Their wings often measure nine feet from tip to tip, while the brown birds have a wing spread of only six feet."

The sun was already sinking toward the western horizon when the two bird students started for home. As they chugged away from the land, Bill turned to watch the island growing smaller and smaller behind them. Suddenly, six pelicans flew up from the bushes.

In a straight line, one directly behind the other, the big birds came flying across the water. Moving their

Bill watched the island grow smaller and smaller behind them

wings in perfect time with the leader, the birds came on swiftly. Sometimes they would stop flying and sail, with wings outstretched, skimming along so close to the water that their breasts almost touched the tops of the waves.

Professor Weston saw them coming and shut off the motor.

"Let's stop and watch them fish," he said.

A short distance from the boat the six birds separated, each one soaring high up into the air and circling around, as if waiting and watching for something.

Suddenly, one of the great birds folded his broad wings and plunged downward, his long beak pointing straight toward the water. He struck the waves with a loud splash and disappeared. In a moment he bobbed to the surface, draining the water carefully from his pouch. Then he tossed up his head, and Bill saw the silvery flash of a minnow as the bird swallowed his catch.

"Oh-ho," said the Professor suddenly. "Here comes a laughing gull. Now we'll see some fun."

The graceful, black-capped gull came flying toward them, the sunlight glinting on its white wing feathers. By this time the other pelicans had also spied minnows and were diving with great splashes and then bobbing back to the surface like big brown corks.

Down swooped the laughing gull, hovering just above one of the pelicans while the bird drained the water

from his pouch. Then, just as he threw back his head to swallow, the gull reached inside the huge beak, snatched the fish, and darted away.

Bill could almost imagine that the gull was laughing as it flew away. The poor pelican! He tossed back his head and gulped, snapped his beak, and blinked his eyes. Finally he seemed to realize what had happened and, with a few disgusted flaps of his wings, he flew off to catch another minnow.

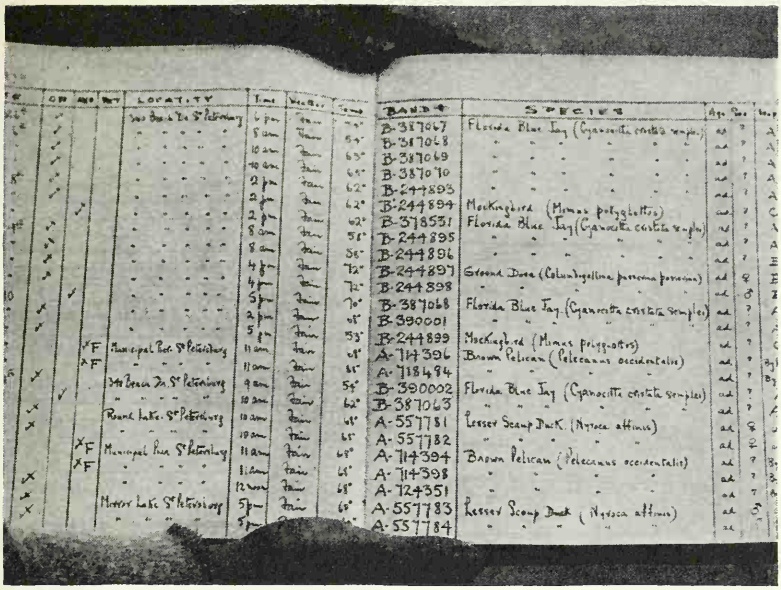
All the while the little drama was taking place, Bill watched eagerly, leaning as far over the side of the boat as he could, in order to see better.

Suddenly, his hand slipped. For a breathless instant he clutched wildly at the air and then, with a loud splash, he fell overboard. He swallowed a mouthful of the salt water and sputtered a little. But paddling with his hands and kicking with his feet, he soon bobbed up to the surface. Professor Weston grabbed him and helped him scramble back into the boat. Since the water was warm, and the summer air even warmer, Bill was none the worse for his ducking.

"What's the matter, Bill?" the Professor said when he saw that the boy was all right. "Did you think you were a pelican diving for fish?"

"I guess so," Bill replied—he had his breath now. "But the gull didn't try to rob me."

"I imagine he can tell the difference between a boy and a pelican, besides, you didn't catch a fish!"



The Professor's bird-guest book

CHAPTER VIII

RAINY DAY RECORDS

Bill awoke next day to find a steady patter of rain beating against the roof and trickling dismally down from the eaves. The morning was gray and mournful looking.

"Aw, gee," Bill muttered, rubbing his eyes sleepily and then scowling out the window at the raindrops. "I guess we won't get to work on the cormorants today."

After breakfast the boy moped around the house for a time, glancing anxiously out of the window every few minutes, just in the hope that the weather would clear.

"What do bird banders do on rainy days?" his mother asked, noting his restlessness and disappointment.

"I dunno," Bill answered. "We had so much planned, and then the old rain had to go and spoil it. I don't see why it had to rain today.

"I wonder what the Professor is doing," he added, some minutes later. "Guess I'll go over to his house and see."

"Go ahead," his mother agreed. "But don't bother him if he's working. Come right home."

"Okay, Mother." Bill was already halfway out the door.

The summer rain was warm, and Bill rarely used a raincoat or an umbrella. He splashed quickly across the sodden grass and dived through the dripping Turk's-cap hedge. In less than two minutes he was knocking on the door.

"Hello, Bill," Professor Weston greeted his young helper with a smile. "The weather man seems to have interfered with our plans."

"He sure has," Bill agreed. Then he added wistfully, "I guess we can't go out to the island today."

"I'm afraid not. But I'm not too sorry about this rain. A day at home is just what I need to catch up with my work. You see, there's a lot more to bird banding than just watching birds and putting aluminum bracelets on their ankles."

"Mother said I should come right home if you were busy," Bill remarked. "She told me not to bother you."

He fidgeted and squirmed uncomfortably for several seconds before continuing.

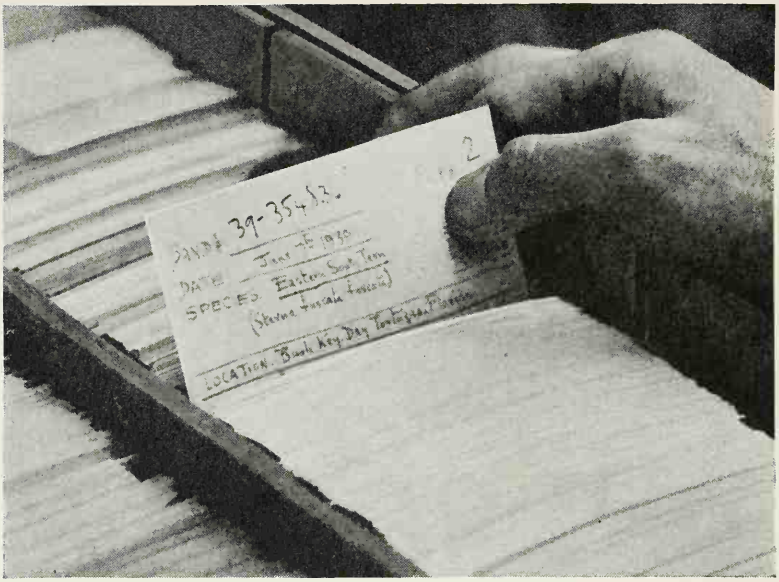
"I told her I would, but I'd like very much to stay and watch you work. I won't bother you. I promise not to say a word."

The Professor laughed.

"Why, certainly. Stay if you like to," he said. "You'll have to amuse yourself, though. There are books on the table and some maps and charts on the wall. Make yourself at home, and excuse me while I go back to my work."

Professor Weston seated himself at his desk and began writing again. Bill strolled over to the table and glanced curiously at the books and pamphlets scattered about. He opened several of them, but they did not have many interesting pictures, and the words were so long and hard looking that he soon gave up trying to read. Even the big, brightly colored map on the wall, showing the flyways of North and South America, failed to hold his interest for long.

Then Bill noticed a notebook, filled to the last page with the Professor's neat handwriting. He picked it up, and looked it over. It proved to be a record of many of the birds the Professor had banded and the "returns," or accounts, showing when and where the birds had been recovered.



Keeping tabs on birds by means of a file card

The first entry attracted the boy's attention. It showed that a herring gull, banded by the Professor in Canada, had been recovered a year later in Texas.

Studying the book more closely, Bill found many other interesting records of bird travelers. Sometimes the banded birds were recovered in the same state where they had first received their aluminum bracelets. In other cases, they had traveled across many states, and even across an entire continent or ocean before they were found.

By first looking at the notebook and then consulting the big map on the wall, the boy was able to trace the routes which the birds had followed. He found that the

ducks which nested in Eastern Canada followed the Atlantic Coast route to their winter homes in the Southland. Some of the large northern birds flew only as far south as the state of Virginia. Other smaller birds, like the bobolink, martin, swallow, and some of the sparrows and thrushes, nested in New England and wintered in Brazil.

With his finger, Bill traced the routes used most often. The migrating birds followed the Atlantic Coast

Bill was interested in the Professor's map which showed the routes of migrating birds

southward, down the length of Florida, and then flew out across the Gulf of Mexico to the island of Cuba. Another route used by many of the birds turned southwest from Florida, across the Gulf to Central America at Yucatan.

It was great fun imagining the many strange sights and adventures that the bird travelers met on their long journeys north and south. Bill was so interested in his map and notebook that he scarcely noticed how fast the hours were slipping past.

"Hi-ho, my friend," the Professor called at last, laying aside his pen and grinning across the room at Bill. "It's lunch time. Aren't you hungry?"

"Yes, I guess I am," the boy admitted, noticing for the first time just how empty his stomach was feeling. "I was so busy tracing the birds you have banded that I forgot all about eating."

"Well, I certainly can't let you go hungry," Professor Weston smiled. "Besides, it is raining too hard for you to go home now. This is my housekeeper's day off, but if you're willing to risk my cooking, I'd be happy to have you stay for lunch."

"Thanks," Bill beamed. "I'd like to."

"Come on then, let's see what we can find in the refrigerator."

They had fun getting lunch. The Professor set Bill to work spreading butter on thick slices of bread while he, himself, was busy with a can opener. Bill thought

that the lunch, topped off with brimming glasses of ice-cold milk, was the best he had ever eaten.

"I'd like to keep right on studying birds, even when I'm a grown man," the boy remarked, when the last drop of milk and the last crumb had disappeared. "I'd like to get a job like yours. Do you suppose I could?"

"Yes, you could, but it's all uphill work, Bill," the Professor replied. "Scientists never get rich, and you need not look forward to making much money. But the fun and quiet enjoyment that men of scientific pursuits get from their work is worth much more than dollars and cents."

"How can I become an ornithologist?" Bill had a bulldog persistency about having his questions answered. "How did you go about it?"

"Well, first of all I had to study hard—long hours of learning from books and from observation," replied Junius Weston. "The best thing for you to do if you really want to start on this long road is to study hard at school now. If you do work hard, you'll probably make good grades. And if you make good grades, getting a start in a fine college will be easy for you. Take all the science courses that you can cram on your schedule even before you get to college.

"That's the way I did. Well, then when I was through college, I was able to go on several scientific expeditions sent out to study birds in their native haunts. I kept my eyes open, and I discovered some things that other

scientists had never noticed. Now, after a lifetime of work, people think I know all there is to know about birds—but I don't. There is still much work to be done before we know all the interesting things about birds' lives. Perhaps you, Bill, can find new things about them if you become an ornithologist."

"Could I go to school to you?" the boy asked eagerly. "I mean, could I go to the college where you teach? Maybe I could help you then, too."

"You certainly could. I would like very much to have you for a college assistant. But you'll have to grow a bit more before you can do that," the white-bearded man added with a smile. "You're not quite old enough for college yet."

"Do you have somebody to help you at the college now?" the boy persisted.

"Yes, and no," a look of regret passed swiftly across the Professor's face. "Dave Martin has been my laboratory assistant for nearly two years. He is a fine young man, as interested in birds as you are, Bill. I had planned to bring Dave with me to Florida this summer, but he was hurt in an automobile accident just a week before we were to leave. He's in the hospital now, and will probably have to stay there all summer."

"That's too bad." Bill could not imagine anything worse than spending the summer in bed.

They cleared away their lunch dishes and returned to the front room where the Professor seated himself.

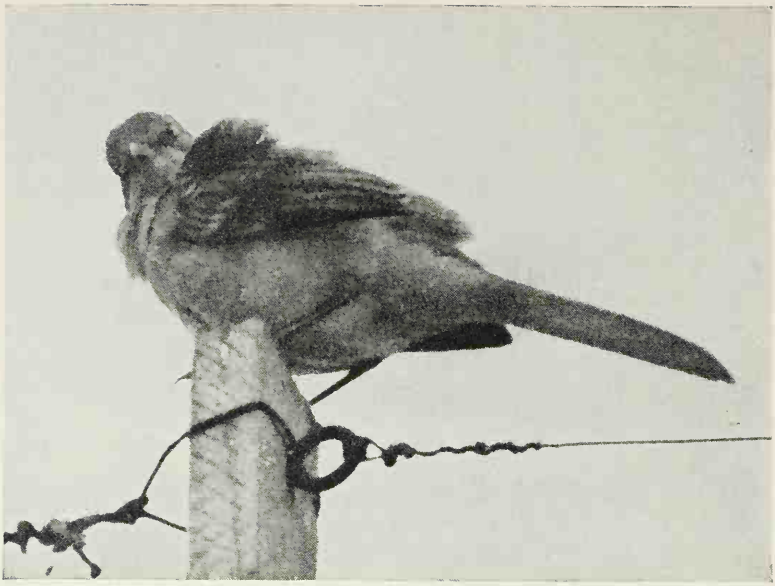
"What are you doing?" Bill asked as he glanced at the Professor's desk. He couldn't help being curious about all the pages the bird bander had written that morning. "Is it all about birds?"

"Yes, I'm taking the brief notes from my field notebook and putting them into better shape. When I go on a banding expedition, I make rough notes about the birds I see. I jot down such things as feeding and nesting habits, flight, weather, temperature, and other information that may help me in later studies. Then, on rainy days like today, I revise my notes and put them in better form.

"This afternoon I must work on my banding report. I've banded a great many birds already this summer, and I must keep my records up to date. The Biological Survey in Washington wants to know what I'm doing, and I can't fall very far behind on my records. I'd never catch up with myself if I did that."

A rustle in the bushes outside the window attracted their attention. They looked out to see one of their mockingbird friends perched on the post. The bird looked uncomfortable and dejected, for his gray feathers were puffed and ruffled to protect him from the rain. Then suddenly, as if to show that he didn't mind the weather, he spread his wings and flew down to take a bath in a deep puddle that had formed under a tree.

"I don't see how anybody can be mean to birds," Bill remarked. "But I guess lots of people are. I know



Mr. Mocker, all puffed up about the rain and looking out of sorts

I've seen folks around here do things that must hurt the birds something awful. I was afraid you were going to do that, too, when I first saw you catch that mockingbird."

"Yes," the man agreed ruefully. "Human beings can do many thoughtless things that will injure harmless birds."

"Some people hurt the birds on purpose," Bill added quickly. "I know I punched Sam Jackson's nose good and hard when he started shooting at the sandpipers with his air rifle. I made him stop, but I got a black eye doing it.

"I've watched grown-up fishermen down on the docks. They throw hooks with bait on them at the pelicans. Then they laugh and think it's mighty funny when the poor birds get the fishhooks caught in their beaks.

"Once my dad found a pelican with a fishhook in its wing and yards and yards of line tangled in its feathers. It couldn't fly, even after he took the hook out. He just had to let it swim away, hoping that it would get better by itself."

The Professor frowned.

"Human beings can make a great deal of trouble and misery for defenseless wild creatures. It's up to people like us, Bill, to see that folks are more thoughtful even if we have to punch noses and get black eyes ourselves in doing it.

"And now, I must get back to my work."

Through the tangled mangrove bushes . . .

CHAPTER IX

THE CORMORANT COLONY

Next morning found Bill and the Professor once more approaching the island rookery. The day was calm and bright, with not a trace of the rain of the previous day.

"You know, I think birds are pretty lucky," Bill said, pointing to the flocks of them that were perching in the bushes or swimming lazily in the warm, shallow water around the island. "All they have to do is eat and sleep and fly. There's no work to do, nobody to boss them around, and nothing to worry about."

"Don't let appearances fool you," his friend retorted. "Those birds are just resting, after long hours spent hatching their eggs or feeding their young. They've worked hard, and I imagine they have just as many worries and troubles as human beings do."

"Maybe so." Bill stared thoughtfully at the little island and wondered if anything could ever be more peaceful. As he looked, he noticed a small black bird alight on one of the nests high up in the mangrove branches.

"What's that bird?" Bill asked. "It looks almost like a crow, but I didn't think crows ever came here."

"It is a crow," the Professor answered after a careful look. "A fish crow—a black-hearted, black-feathered villain, if there ever was one. He can give your bird friends plenty of cause for worry."

"Look at him now," Bill interrupted. "Gee whiz, he's flying off with an egg in his beak. What's he going to do with it?"

"Eat it," the bird bander answered. "I imagine he plunders this rookery steadily all during the nesting season. That must be a heron's nest he just raided. A pelican's or a cormorant's egg would be too large for him to carry."

"I'll say he's mean," Bill echoed indignantly, watching the black robber disappear behind the bushes. "I've read about crows getting into cornfields, but I never knew they stole birds' eggs, too."

"All crows are nest robbers," the ornithologist explained, "but the fish crow is the worst of the lot. He is somewhat smaller than his cousin, the common cornfield crow, and he is found along the seacoasts instead of inland. He catches a good many fish and clams in addition to his birds' egg diet, and he is also a seashore scavenger."

After the boat was beached and made fast to a mangrove trunk, the two bird students started inland. The Professor had already explained that the cormorant nests would probably be farther back from the shore than the pelican nests had been.

As they penetrated deeper and deeper into the rookery, Bill couldn't help feeling a bit creepy. They were out of sight of open water now and the thick tangle of leaves and branches cut off the sunlight, allowing only a dim, greenish glow to filter through. A dank, musty smell seemed to rise from the soggy ground, getting into the boy's lungs and clinging to his throat and nostrils.

There were birds in the bushes all around them, and birds flying low over the branches above their heads. The wings made a spooky swishing sound, and the perching birds added their voices to the weird din. There was the gurgling "Burrrp!" of the cormorants, the sharp "Squark-squark-squark!" of the herons, and the shrill scolding of other birds which Bill could not see.

Suddenly a sharp "Spat!" sounded close behind him. It was almost like the report of a gun, and Bill couldn't help jumping.

"What was that?" he whispered.

Professor Weston laughed.

"Just a cormorant bombarding us," he answered. "Perhaps I should have told you that cormorants, like several other shore birds, have a bad habit of disgorging half-digested fish and dropping them down on the heads of anyone passing below. I've known a cormorant to spit up twelve or fifteen fish in rapid succession—not at all pleasant, I must admit."

Another sharp "Spat!" sounded close by. This time Bill was able to see that the noise was caused by a six-inch fish dropped by a black-feathered cormorant sitting on a nest some distance above them. Hurriedly the two jumped back out of range.

"Look," Bill said, pointing to the fish. "Its gills are moving—it's still alive."

"The cormorant must have just caught it," the Professor nodded. "Those birds are excellent fishermen. In fact, they are so good that Chinese fisherfolk take them into partnership."

"How can they do that?" Bill asked.

"When the birds are young, they can easily be tamed and trained. When they are grown, they are taken out in a boat, a line is fastened to each bird's leg, and then they are released. The master fisherman may use as

many as twenty cormorants at one time. A ring or collar is fastened around their necks so they cannot swallow the fish they catch. Each time the fisherman sees one of his birds dive and come up with a fish, he pulls the bird in, takes away the catch, and then sends the bird back for more. Cormorants earn a living for many Chinese."

"Pretty soft for the fisherman," the boy exclaimed.

"Yes, but it takes a great deal of skill to manage the birds and to keep the lines from becoming tangled. The fisherman works as hard as his birds do. Well, Bill, I'm afraid we can't do much here. All the nests are up too high. Come on, let's explore the rookery some more."

For some time they plunged on through the tangle. Fortunately, toward the center of the island the growth was not so dense, and travel was less difficult. At last the Professor stopped to rest. Leaning against a gnarled mangrove trunk, he mopped the sweat from his shiny bald head.

"Whew, this is hard going," he panted, grinning at Bill. "Have I as much mud on me as you have?"

"Just about," the boy answered.

"As soon as I get my wind, we'll go back to the boat. I'm afraid we won't be able to do much banding today. The nests are all too high to reach without a ladder."

"There certainly are a lot of nests around here," Bill said, looking regretfully at the untidy stick platforms high above their heads. "They all look alike, too. I don't see how the birds can tell them apart."

Mother Pelican flaps her wings indignantly at an unseen foe

"I guess it's just as easy for them as it is for people who live in apartment houses," said the Professor. "Most apartments look alike to me, too."

After a short breathing spell, they returned to the beach, climbed into their boat, and pushed off. They were too tired to say much for some time, and were content to let the boat drift aimlessly with the tide.

"Well," said the Professor at last, "the morning's nearly gone, and we haven't accomplished a thing. It's too late to go home for a ladder to reach the cormorants' nests, and I don't feel like doing any more island exploring today. We might as well drift for a time and watch the birds. What say, partner?"

"Suits me," Bill agreed. "Just listen to all those cormorants on that dead tree. It almost sounds as if they are laughing at us."

Half angrily, the boy picked up a floating stick and threw it at the raucous birds. The missile went wide of its mark, as Bill had intended it to do, but it landed among the near-by bushes, and the crash frightened the cormorants.

With harsh squawks, they flew away, launching themselves clumsily into the air, their necks outstretched and their wings beating rapidly. The birds' bodies were so heavy, Bill noticed, that they could not rise immediately. Even though they were perched high in the bushes, they dropped down almost to the water before they could get under way. Their wing strokes were quick and nervous, contrasting sharply with the more rhythmic flight of the three pelicans that rose with them.

"What is the scientific name for cormorants?" asked Bill suddenly.

The Professor stroked his white beard.

"I declare," he answered ruefully, "you're turning me into a regular walking textbook on ornithology. All my college classes put together never asked me as many questions as you do. Nor as sensible ones. Keeps me on my toes just getting the answers ready."

Bill didn't know what to say to that, so he just sat still and grinned.

A mother cormorant looks out upon an interesting world

"I know what let's do," Professor Weston went on. "How about having you tell me all you know about the cormorants? Let's see just how well you have used your eyes all the years you've lived around here."

Bill gulped. He wasn't any too pleased with that arrangement.

"We-ll," he began slowly. "Down here most people call cormorants either 'nigger ducks' or 'hell-divers.' Nobody seems to know very much about them."

"Go on," the Professor nodded, when Bill stopped doubtfully.

"There are an awful lot of cormorants around here," the boy continued. "Almost every stake or post sticking

The noisy cormorants left their perches with startled squawks

out of the water has a cormorant perched on it. Lots of times the birds sit with their wings outstretched. I guess they like to let the wind blow through their feathers. They're good swimmers, and usually they carry their heads pointed up at an angle, as if they were ready to fly away at the first sign of danger. They're good divers, too. On land they seem awkward because their legs are so short. Their feet are webbed. Most of them are all black, although I have seen some with brown backs and grayish vests. That's all I know about them."

"You know quite a bit, Bill," his friend replied. "The adult birds are black, and the young are brown. When the nestlings are first hatched, they are quite naked, but soon they are covered with a thick black down. Their first feathers are brown, but as the birds mature, they grow new black feathers."

"Sounds awfully funny," Bill murmured.

"Oh, no. Birds molt several times a year. Their old feathers drop out, and new ones grow in. They usually look pretty ragged and disreputable while this is going on, and they stay in seclusion as much as possible. Most birds shed their large wing, or primary feathers, in pairs, the next pair dropping out when the new ones have grown in. However, some ducks shed all their primary wing feathers at once and for a time are unable to fly. The puffin, an arctic diving bird, even sheds the outer covering of its beak when it molts."

"Is that how the birds get their bright spring feathers, and then change to dull colors again in the fall?" Bill wanted to know.

"That's the way it's done. Birds molt and grow new, bright-colored feathers just before the nesting season. Most of them shed their finery in the fall, and put on sober winter clothes."

"Do they have many enemies?" Bill asked.

Just as Bill was speaking, a sharp, explosive "Crack!" broke the stillness of the midday air. The cormorants left their perches with startled squawks. Their wings beat rapidly, splashing in the water until the birds were able to get under way and rise into the air. Soon they had all disappeared in the distance.

"What was that?"

Bill swung around to see his companion standing in the stern of the boat.

"Some scoundrel is shooting at those birds," Professor Weston exclaimed. "We must find out who it is."

They did not have to wait long. A battered, weather-beaten rowboat swung slowly into view from behind a jutting clump of mangrove bushes. The boat was being poled by a ragged, tow-haired boy. As it came closer, Bill could see a gleaming rifle lying across the stern seat of the boat.

"Don't you know it's against the law to shoot cormorants?" the Professor called sharply. "I could

report you to the game warden and have you put in jail."

The boy had a guilty look. And he also seemed frightened.

"My Paw told me to do it," he retorted defiantly. "He's a fisherman, and he says those nigger ducks spoil all the fishing."

"You tell your father and the other fishermen that these birds are protected by federal and state laws," Professor Weston answered crisply. "And they don't spoil the fishing. Instead, they help fishermen by eating harmful fish. If I ever catch you shooting at birds again, I'll have you arrested. Do you understand?"

"Yes . . . yes, sir."

The man and the boy could not help laughing at how quickly the apparently now frightened youngster swung his leaky boat around. He was soon seen poling rapidly off in the direction from which he had come.

"That may be the last time he'll shoot a cormorant," said Bill.

A heron with a neck like a question mark perched on a bush

CHAPTER X

BILL GETS A MUD BATH

It was several days before the Professor finished banding the colony of cormorants. There were young birds in plenty, but the nests were placed so high in the slender tips of the bushes that it took a long time to reach them.

With Bill's help, the Professor built a long ladder of bamboo stems, one that was very strong, and yet light enough to be carried easily. Of course it took much labor and great deal of patience to maneuver it through the dense undergrowth on the island but, with care,

the two bird students managed to complete the job to their own satisfaction.

"What'll we do next?" Bill asked. "The cormorants were so much fun I'm really very sorry we've finished with them."

"Hard work doesn't dull your enthusiasm," Professor Weston smiled. "I think we'll tackle the heron family next. There seems to be quite a number of them nesting on the key that lies just east of the cormorant rookery. But you must give me a day or so to work on my notes before we go there."

Several mornings later they set forth once more in the purring outboard motor boat, this time heading for the eastern island where the heron colony was located. As they approached the island, Bill could see several of the long-necked, long-legged birds perching in the bushes. Others waded sedately in the shallows, pausing now and then to plunge their sharp beaks into the water to spear an unfortunate minnow.

Suddenly a small, heavy-headed bird flew up from the bushes, uttering a sharp, rattling cry. Immediately all the herons took fright and flew away, squawking harshly and moving their long, slender wings with graceful ease.

"Aw, why did that silly old kingfisher have to go and scare the herons?" Bill grumbled, watching the great birds disappear around a curve in the shore line. "They didn't even see us until he warned them."

"Don't worry, we couldn't have gotten much closer," the Professor answered. "I really think the kingfisher serves as sort of watchman for them. In all my studies in southern waters, I've noticed that the big-headed little chap is always ready to sound a warning whenever he thinks danger is approaching.

"I've always had a kindly feeling toward kingfishers because of an old, old story about them," the Professor said thoughtfully. "The tale goes back thousands of years to the days of ancient Greece, and it concerns a European relative of our American belted kingfisher."

"What is it?" Bill asked.

"It's a rather fantastic tale," the Professor smiled. "Long ago the portion of Greece called Thessaly was ruled by a king named Ceyx. He and his wife, Halcyone loved each other very much. One day while Ceyx was away on a sea voyage, a violent storm arose. The royal vessel was sunk, and King Ceyx and all the crew were drowned. Several mornings later Halcyone found her husband's body on the seashore, and her grief was so great that she cast herself into the sea. The gods took pity on her. They changed both Halcyone and her husband Ceyx into sea birds, called halcyon birds. The name still lingers in our scientific classification, for kingfishers belong to the suborder *Alcyones*."

"Say, that's interesting," Bill exclaimed. "Seems queer that a bird's history can go back so far. I like them too, now that I know their history."

—Armstr

Bill climbs up an old fort to take a look into a bird's nest

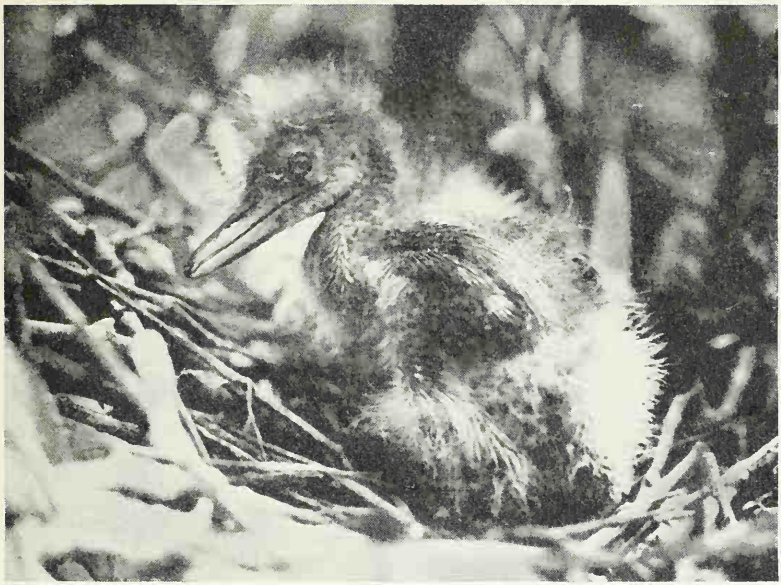
"There's a little more to the tale," Professor Weston continued. "The word 'halcyon' has come to mean something that is calm and peaceful. The ancients thought that kingfishers built their nests on the waves during the seven days preceding the shortest day in the year and, on the seven following days, they raised their families. During those fourteen 'halcyon days' the sea remained calm out of sympathy for the birds, and it was safe for sailors to venture forth in their ships."

"Gee whiz, do they really build their nests in the water?" Bill asked.

The Professor shook his head.

"No, the ancients were wrong there," he answered. "Kingfishers nest at the end of a long burrow which they dig in a sand or gravel bank. The old Greeks and Romans thought several different kinds of birds built nests that floated about on the waves but, as far as I know, no bird does just this, but a few of them do build on floating vegetation. Here's a good place to land. Let's go in to visit the herons."

The island was much the same as the one they had visited on previous days. The heron nests were placed high in the branches so that Bill and the Professor had to use their bamboo ladder to reach them. Most of the young birds were nearly grown, and their long legs and long necks gave them a gaunt, emaciated appearance. The old birds did not attempt to defend their nests, but the youngsters were well able to take



"There isn't much difference between this baby heron and a feather duster!" thought Bill to himself as he looked into the nest.

care of themselves, darting their long, sharp bills at the intruders with lightning-like rapidity. Bill had to hold those beaks while the Professor adjusted the largest-sized bands about the long, skinny legs of the young herons.

"These are great blue herons," the bird bander said, indicating two half-grown birds he had just banded. "Those fellows over there in the next tree are little blue herons. The little chaps are just about half as large as their big cousins and, until they are full grown, their feathers are practically all white. For that reason people often mistake immature blue herons for egrets."

After banding as many of the herons as they could reach, the two bird students paused for a time to rest, and to enable the Professor to jot down hasty memoranda in his notebook.

"Herons certainly look a lot like storks," Bill said, squinting at one of the long-legged birds that had just alighted in the branches above his head. "Are they related?"

The Professor looked up from his notes and grinned.

"That question gives me a chance to tell you about one of the most complicated classifications," he replied. "In general, the answer is yes—herons and storks both belong to the order *Herodiones.* However, because of the difference in their bills, they are grouped in separate suborders."

"Whoever thought up all those divisions in the first place?" the boy questioned. "Somebody certainly had an imagination."

"Oh, no, the divisions are quite logical, and they are the result of many years of labor. In the long run, the divisions make bird study easier, but I think in this case, we'd get ourselves tangled up in a short time. I'll just use common names in this discussion."

The Professor's eyes were twinkling as he continued.

"You asked about storks. They are largely an Old World family, and we have only one member in this country—the wood ibis, which is not an ibis at all, but a true stork instead. It is a large white bird with

greenish-black wing tips and tail. Its head and neck are grayish, being covered with scales instead of feathers, and its beak is stout and curved at the end.

"True ibises have long, slender bills that curve sharply downward, and their heads are feathered. The white ibis, with its orange-red beak and face, is the best known member of this family, for it frequently wanders north to the Great Lakes region. It is a swamp and marsh bird rather than a shore bird, although I have seen flocks of white ibises feeding among the mangroves. Do you want some more ancient history, Bill?"

"Sure," the boy answered. "Is it about the ibis?"

"Yes. The bird was considered very sacred by the ancient Egyptians. The Egyptian god, Thoth, who presided over science, wisdom, and magic, was thought to have the head of an ibis—you know that most Egyptian gods had the heads of birds or animals. Many of the sacred ibises were mummified and placed in the tombs of kings and priests. Even today the people of Egypt call the ibis 'Abou-mengel,' meaning 'father of the sickle,' because of its curved beak."

"Whew," whistled the boy. "I never knew birds were so mixed up with history."

"Not many people do," his friend answered. "The ibises have another close relative, the roseate spoonbill, which is a most interesting bird. Unfortunately, it has been hunted so much for its beautiful pink

and crimson feathers that it is extremely rare to see it nowadays."

"What does it look like?"

"It closely resembles the rest of the heron family in build, but its wing and tail feathers are deep crimson, while its breast, neck, and back are white tinged with pink. It got its name because of its queer, flat, spoon-shaped bill. This beak is long and thin and difficult to describe because I don't know of another bird with a bill anything like it. The bird gets its food by wading —swinging its open beak from side to side through the water and spooning up all the fish and snails that it touches."

"I'd sure like to see a spoonbill," Bill remarked. "I can't quite imagine what it looks like. Now tell me more about herons."

"Suppose you tell me, instead," the Professor answered.

"Um, well all herons have long legs and long necks. They have enormous appetites, too, because no matter how many fish they catch, they never seem to get enough to eat—and they never get fat. I guess because of their long legs, they have to live along the shore or near lakes where they can go wading. Are there many different kinds of herons?"

"Yes, some twenty members of the family can be found in Florida. They are not as numerous as they once were because of the hunters and other thoughtless

humans who disturb and kill them. Some of the best known members of the heron family are the bitterns, the egrets, the great blues and the little blues, and the little greens. Many Louisiana herons nest in Florida, too."

"Say, what's the difference between a crane and a heron?" Bill asked suddenly.

"Aha," answered the ornithologist, "there you have a problem that few people understand. Cranes and herons belong to entirely different orders, although they look a great deal alike to the casual observer. Cranes belong to the order *Paludicolae*, and they are strictly marsh dwellers. They eat grains and roots, in addition to their fish and frog diet, while herons are strictly flesh eaters. Cranes are very rare in this country today, although early settlers said that there were great numbers of cranes to be found from New England to Florida."

"But how can you tell them apart?"

"There is one way that never fails," Professor Weston said. "Cranes fly with their long necks stretched out at full length, while herons fold their necks back against their shoulders when they are in flight."

"Look! Look!" Bill shouted suddenly, pointing into a mangrove tangle close by. "There's a young heron on the ground. I'm going to catch him."

Scrambling as fast as he could over the soggy, root-covered ground, the boy hurried toward the long-legged youngster. The heron saw him coming and

The goal—a heron's nest high in the mangrove bushes

started to run also, dodging rapidly from one mangrove cluster to another, making good time with his long legs, and using his partly grown wings to help.

Round and round they went, while the Professor stood watching in amusement.

"Get him, Bill," the man urged. "He's heading for the water."

"Oh, no, he isn't," the boy panted. "I'll stop him."

The young great blue heron was growing tired, and Bill was almost within reaching distance. In fact, he was all ready to reach out and grab the bird when, suddenly, his foot caught in a long, snaky root. Down he went, ker-splash, flat on his stomach in the mud.

With a squawk of triumph, the young heron reached the edge of the island and waded to safety beyond reach in the shallow water. He had disappeared around a bend in the shore line before Bill was able to scramble to his feet.

Sputtering angrily and wiping the mud from his face as best he could, Bill returned to the Professor. The white-bearded man could not help smiling at the sorry state of the boy.

"You are a sight," he said. "That mud bath may improve your future beauty, but it certainly doesn't help your appearance now. Come on, I'll help you wash it off."

"I didn't want the old heron, anyway," Bill said after he had washed most of the mud from his face and clothing. "What was he doing down on the ground?"

"Many young herons fall out of their nests before they are full grown," his friend answered. "They have to stay on the ground until they are able to fly. Your experience proves that they can take care of themselves though. Don't you think so?"

"Uh-huh, I guess so. But I'd have had him if my foot hadn't caught on that old root. I'll chase him again, if I ever get the chance. And next time, I'll get him, too."

A great blue heron resting after a water-snake dinner

CHAPTER XI

BIRDS AMONG THE STARS

Thousands of stars twinkled brightly overhead. Waves swished softly against the shore, and the sand crinkled pleasantly underfoot as Bill and the Professor strolled together along the beach.

"I wish we could study birds at night, too," Bill said. "It's so nice and cool now, and I don't feel a bit sleepy. Birds miss an awful lot by going to bed as soon as the sun goes down."

"Not all birds do that," his friend answered. "Maybe, if we watch, we can see some of them tonight."

"I like stars, too," the boy rattled on. "Dad has told me a lot about them, and I know a couple of constellations. Do you know anything about stars?"

"A little," the Professor smiled, "although I never claimed to be much of an astronomer. Which constellations do you know?"

"Well, I'm only sure of one or two. The one straight overhead in the summer is called the Northern Cross. See, right up there in the Milky Way—you can see the five bright stars that make the cross. I think it's the prettiest bunch of stars in the sky. I like it best, too, because I can always see it in summer time."

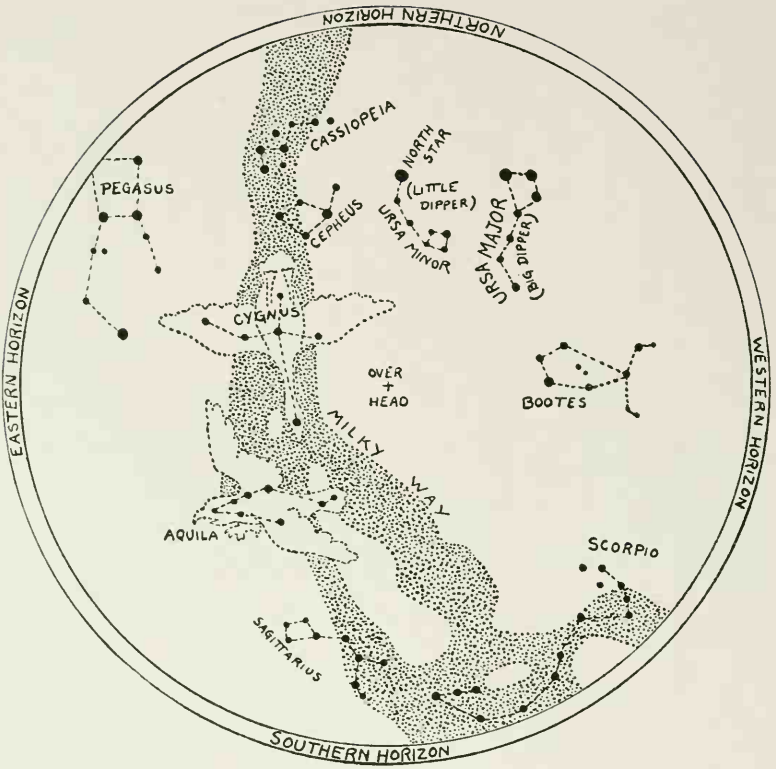
"Do you know the other name for the Northern Cross, Bill?" the Professor asked, while the boy pointed out the stars of the constellation. "It's named after a bird, you know."

"Is it? I didn't know that."

"Oh, yes. The old Greeks and Romans called it the constellation of Cygnus, the Swan. Instead of a cross, they saw it as a great swan, flying through the Milky Way with neck outstretched and wings spread wide. Look at the constellation again and see if you can't imagine it's a swan."

Bill stared hard at the sky, tipping his head back so far and holding it there for so long that his neck began to ache.

"Say, it does sort of look like a bird," he agreed. "Are there any other bird constellations in the sky?"



Sky birds

"A few, but only one other is clearly visible at this time of the year. You can see Aquila, the Eagle, in the Milky Way just below Cygnus. The other bird constellations are Corvus, the Crow, and Columba, the Dove. People sometimes call the Pleiades the seven Pigeons. Ask your father to help you find those constellations next winter when the stars will have swung far around in their courses."

Not all birds go to sleep as the sun goes down

Before Bill could reply, a sharp, croaking sound broke the soft stillness of the night.

"Squawk! Squawk! Squawk!"

"Wh-what's that?"

The strange, ghostly noise made Bill jump. He put his hand on the Professor's arm. He wasn't exactly scared, but he was mighty glad that he wasn't alone on the dark, shadowy beach.

The Professor chuckled reassuringly.

"Why, Bill, don't you recognize an old friend? That's a heron—for all we know, it may be one of the birds we saw out on the island today. It may even be related to the youngster that gave you your mud bath this afternoon. Watch now, while I throw my flashlight beam on it."

The powerful white light cut through the darkness, darting here and there across the waves. Shadowy wings flashed across the light beam, hesitated, and a long-legged great blue heron alighted noiselessly in the shallow water some twenty feet from where the two bird students were standing.

The heron seemed puzzled by the light, but he was not the least bit afraid. For a time he stood motionless, staring fixedly into the beam. Then, apparently deciding that it was harmless, he resumed his never-ending search for fish.

Slowly he waded along the shore, lifting each slender leg with great care and deliberation, so as not to make

the slightest noise or cause the faintest ripple in the water. His long neck was held outstretched and ready.

The Professor kept his flashlight focused on the great bird so that he and Bill were able to watch the heron fisherman's every move. Suddenly the long neck plunged downward, and the two spectators caught the faint gleam of silver as an unlucky minnow disappeared inside the bird's sharp bill.

A few feet farther on the heron made another catch, only this time he did not swallow so quickly. Something long and wiggly protruded from his beak when his head snapped erect again.

"Gee, whiz, he's caught a snake," Bill whispered. "Now what's he going to do? Do you suppose he can swallow it?"

"Watch and see," the Professor answered softly.

The heron seemed to be at a loss to know what to do with his queer catch. For many minutes he stood motionless, twelve or more inches of snake dangling from his beak. He would shake his head vigorously, while Bill squirmed in silent sympathy. He couldn't quite make up his mind which to be sorrier for—the bird that was trying to swallow or the snake that was being swallowed.

After many minutes, the snake gradually began to grow shorter. Inch by inch it disappeared until at last, with a final shake of his head and a snap of his beak, the heron was able to swallow his dinner.

"Whew," breathed Bill out loud, "I'm glad that's over at last."

"So am I," agreed his friend. "And I think the heron feels the same way. He probably doesn't catch a salt-water snake very often, and he certainly had his difficulties with that one. I hope it doesn't give him indigestion."

The bird remained motionless for some minutes, resting after his strenuous efforts to swallow. Then, with a final shake of his head, he spread his wings, uttered a harsh "Squawk!" flew out of the beam of light, and was lost in the darkness.

"Do many herons go out at night?" Bill asked curiously. "I don't see how they can ever find their way around in the dark."

"They do, just the same," Professor Weston answered. "Most members of the heron family are more or less nocturnal in their habits, and they like to fish by starlight. The yellow-crowned and the black-crowned night herons do most of their fishing after sunset and often, late at night, you can hear their sharp 'Squawk! Squawk!' cries as they fly past in the darkness."

"Do they live around here?" the boy wanted to know. "I never heard of those herons before. What do they look like?"

"Both kinds of night herons nest here in Florida, but they are shy, silent birds and they rarely venture far from home in the daytime. They are somewhat smaller,

and their necks and legs are much shorter than those of the great blues. Still, they can never be mistaken for anything but members of the heron family."

"I'd sure like to see one of them."

"Perhaps we will. It's getting late now, Bill, and it's high time we were heading for home and bed. We have a great deal of work ahead of us tomorrow, and we ought to make an early start."

Three fuzzy baby egrets—very awkward and untidy

CHAPTER XII

A BIRD WARDEN APPEARS

They spent several days banding the herons. Bill tried hard to remember everything the Professor told him about the long-legged birds, but it was difficult to keep the information from getting mixed up. With his forehead wrinkled into a deep frown, the boy followed his friend, scrambling through the bushes.

"Here is another group of nests," Professor Weston showed him, stopping in a small clearing. "I can't quite tell what kind of birds they are. The nests are up high, and the branches are pretty thick."

"Say, he's a beauty!" exclaimed Bill excitedly

Before his companion could take out the field glasses, Bill knelt down and picked up a strange white feather. It was more than a foot long and, instead of looking like an ordinary feather, it had many fine, fringelike projections extending out from the central shaft.

"What's this?" he asked, looking at it curiously.

"Why, bless my soul," exclaimed the ornithologist, "that's an egret plume. We must be in an egret colony. Wait, let me take a look."

Training his glasses on the nests, the Professor studied them carefully. As he watched, a bird settled down on a near-by treetop and even Bill could see the snow-white feathers gleaming in the sunlight.

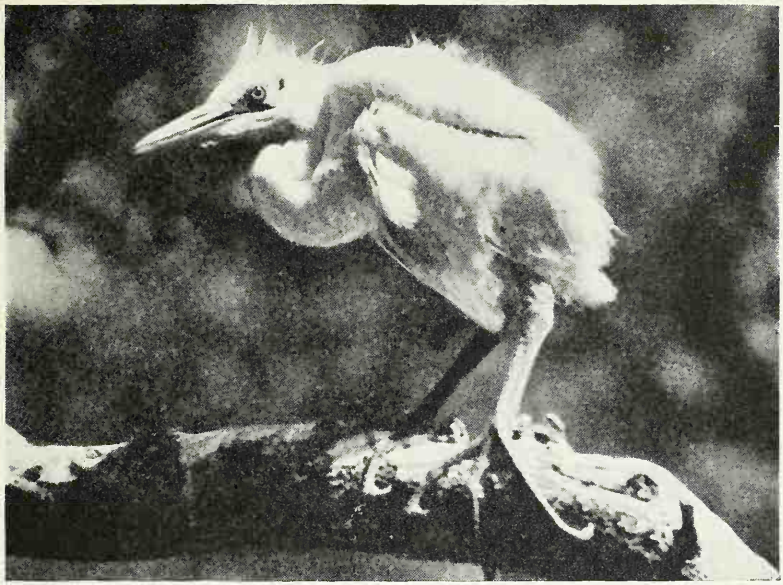
"Yes, sir," the Professor rejoiced. "We've stumbled onto an American egret colony. I never expected to find them nesting so close to civilization. Here, take a look through the glasses."

Bill focused the binoculars on the white bird.

"Say, he's a beauty," he exclaimed excitedly.

The egret was built like its heron cousins, with a long S-shaped neck, a slender, streamlined body, a sharp yellow bill, and black legs. Plumy feathers, like the one Bill had found, grew from the egret's shoulders and back, so that the bird seemed to be wearing a long white lace veil and train.

On the rough stick platform beside the adult bird, Bill could see two awkward little nestlings which were



A baby egret, clutching his perch and not at all sure of himself

opening their yellow beaks and thrusting out their long necks hungrily. They were as homely and ungainly looking as all other baby birds, and even hungrier than most.

"Are you going to band them?" the boy asked after he had studied the egrets for a long time.

"I certainly am," the Professor answered emphatically, getting out his banding tools. "I wouldn't miss a chance like this for anything. First we'll have to go back and get our ladder—we left it under the great blue herons' nests."

After another hard scramble through the thickets, the two bird students managed to carry their ladder

to the egret colony. Professor Weston was as excited as a boy when finally they were ready to climb up into the gnarled mangrove tree.

"Hey, there," a harsh voice shouted. "What are you doing to those birds? Don't you know it's against the law to bother them?"

Bill and the Professor turned around in surprise to see a tall man watching them. He carried a rifle balanced in the crook of his arm. Bill was too startled to make a sound but the Professor rose to the occasion immediately.

"It's all right, I assure you," he said. "I have a special permit from the state and national governments to band and study all types of birds on the Florida keys—egrets included. I can show you the permits if you wish. By the way, aren't you Jim Hill, the Audubon warden?"

"That's my name," the man answered, as he squinted closely at the Professor. "Say, I know you," he exclaimed suddenly. "I met you up North at a convention last year. You're Professor Junius Weston, the man who took me through the big museum and zoo. Shake hands, Professor. I never expected to find you down here."

The two men shook hands in a friendly fashion, and Bill's heart settled back into its proper place. He was sure it had bounded up into his throat during the past few minutes.

"Warden Hill," the Professor was saying, "I want you to meet my assistant, Bill Elliot. He's a great help to me and a budding young ornithologist, as well. We have banded several hundred shore birds since the beginning of the summer."

"Glad to know you," said the lanky warden, taking Bill's hand in a bony grip so unexpectedly powerful that it was all the boy could do to keep from wincing.

Bill took a good look at the warden—a tall, thin, weatherbeaten man, with a lean, sun-browned face, and quick black eyes—eyes that somehow reminded Bill of a bird. His neck was long and stringy, with a prominent Adam's apple that bobbed up and down above the open collar of his faded kahki shirt. Long legs were encased in high leather boots and baggy trousers, and his head was covered by a battered felt hat. His voice was inclined to be harsh and a little squeaky. Altogether, he reminded Bill very much of the long-necked, long-legged wading birds that were his charges.

"Hope I didn't scare you too much, coming at you with my gun the way I did," the warden said, turning back to Professor Weston. "You see, these egrets are my special favorites, and I get mad when I think anyone is disturbing them."

"I know exactly how you feel," the Professor nodded. "I have a warm spot in my heart, too, for egrets. Why not stay and watch, while Bill and I band them? Then we will all go back to the boat and have lunch together."

"That suits me," grinned the warden, propping his long body against a tree trunk. "I'm always ready to eat."

When the bird banders climbed into the treetop, they found the entire egret colony confused and untidy. In spite of their aristocratic appearance, the egrets seemed to be poor nest builders and worse housekeepers. Some of the crude nests contained beautiful blue-green eggs, while others held awkward, fuzz-covered babies.

A few of the fledglings were nearly full-grown and, although they were unable to fly, they scampered about over the closely interlaced branches with the greatest of ease. Bill had a hard time catching these active youngsters so that the Professor could band them.

At last the task was done, and the two climbed down to the ground where Warden Hill was waiting.

"Now let's find the boat and have lunch," the Professor said.

Shouldering his end of the ladder, he led the way through the thicket, Bill and the warden tramping at his heels.

All the way back Bill could scarcely take his eyes off Warden Hill. The tall man looked more like a heron than ever, as he lifted his long legs high or ducked his head awkwardly in order to get his lanky body through the bushes.

"How long have you been warden here?" Bill asked when they gathered around the lunch box.

"About ten years in this region," was the answer, "but I've worked for the Audubon Society most of my life. I've been around birds so much that it's a wonder I can't fly."

The warden took a huge bite of sandwich, swallowed it with a jerk of his Adam's apple, and then winked at Bill before continuing. "I'll bet I could even feel at home roosting in a tree at night."

The thought of the skinny warden perching on a tree branch tickled Bill so much that he almost choked. The Professor had to pound him on the back before he could catch his breath again.

"Professor," Jim Hill remarked, reaching for another sandwich, "I think this bird-banding idea is a mighty good one. I'd like to be a bander, myself, if I had more time. But just looking after the birds and seeing that no one bothers them keeps me busy."

"Do many people try to hurt them?" Bill asked. "Do you ever have to use your gun?"

"Not often. I don't have nearly so much trouble as I used to," the warden admitted. "People are finally getting it through their heads that the law means business when it says the birds must be protected.

"I can remember back in the old days, when I first got this warden job, I'd scarcely ever seen an egret. Plume hunters had killed 'em off by the hundreds for their 'aigrettes,' or long, plumy feathers. But lately, the birds have been increasing. Take, for instance, that colony

you just banded. I've watched it grow from eight to more than fifty pairs."

"Do storms cause much damage out here on the island rookeries?" Professor Weston inquired.

"Sometimes. The last big hurricane killed a lot of my birds—it almost wiped out some of the largest colonies. But I've noticed that the birds always come back faster when something like that happens than they do when hunters kill them. I suppose nature has arranged to take care of storm losses, but wild creatures just can't stand up against hunters with guns."

"I guess the egret's big plumes are not so much in demand any more," the Professor added. "They have gone out of style as women's hat decorations."

The bird warden nodded.

"Times have changed," he said. "I can remember back when women used to wear hats as big as cart-wheels and have 'em covered thick with egret plumes. Last summer when I went up to the convention in the city, I noticed the ladies wearing some funny-looking hats. They looked like everything from pancakes to stovepipes. There were feathers on 'em, too, but they didn't come from wild birds—they were mostly chicken feathers painted up."

"How did you like the city, warden?" asked the Professor.

"Oh, it was all right," the lanky outdoorsman answered slowly. "The people were good to me—took

me around to see all the sights, and I almost broke my neck looking at the tall buildings. But I was mighty glad to get back home again. I wouldn't trade the whole city for my home camp on Cannonball Key."

"But those plume hunters you were talking about," Bill insisted. "Why did they kill all the egrets?"

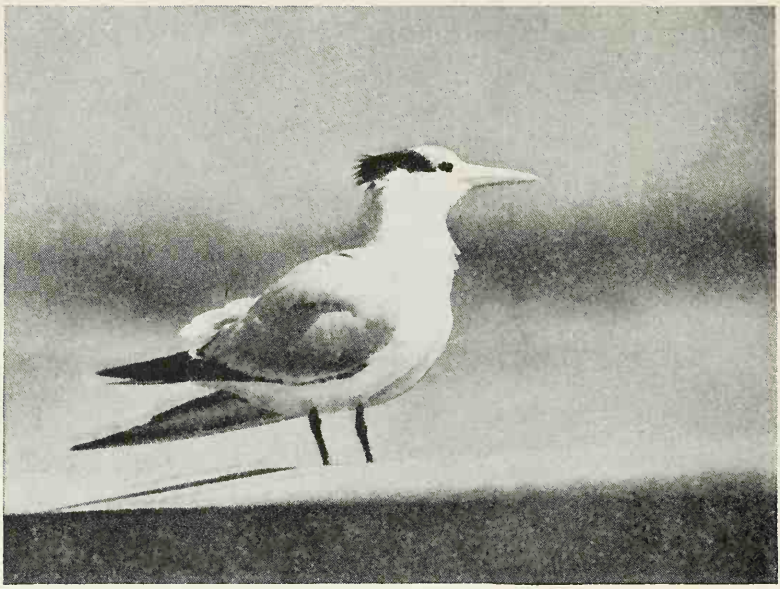
"Well, son, it's this way," the warden began. "Back in the days before you were born, all those ladies who liked to wear big hats had to have lots of feathers and plumes on them. The plume hunters were the ones who got those feathers, and they had to shoot the birds to do it.

"The best time to get the plumes was when the old birds were taking care of their youngsters. They were too wild and smart to let hunters come within shooting range at other times.

"Hunters would wait until a rookery was 'ripe.' That was when the eggs had hatched. The old birds would keep coming back to take care of their youngsters, even when they saw their neighbors being killed. It didn't take many years for the hunters to kill off nearly all the egrets because after the old birds were shot, the young ones died of starvation."

"Was it only egret plumes the hunters wanted?" Bill asked.

"Nope. They shot spoonbills and flamingoes, too. Hat makers paid well for the plumes—as much as ten dollars for the feathers from one bird—and the country



The aristocrat of the family—a royal tern

was overrun with plume hunters. It wasn't until after the Audubon Society had laws passed protecting the birds that the killing stopped. By that time it was too late to save the flamingoes. There are still a few spoonbills left, but only the egrets are making much of a comeback. They're increasing every year."

"It is a sad story, all right," the Professor nodded. "But I hope for the egrets and spoonbills, at least, that it will have a happy ending."

"So do I," agreed the warden. "Professor, are you planning to study more of the birds around here?"

"Yes, I'd like to do some work on gulls and terns before the summer is over," Professor Weston answered.

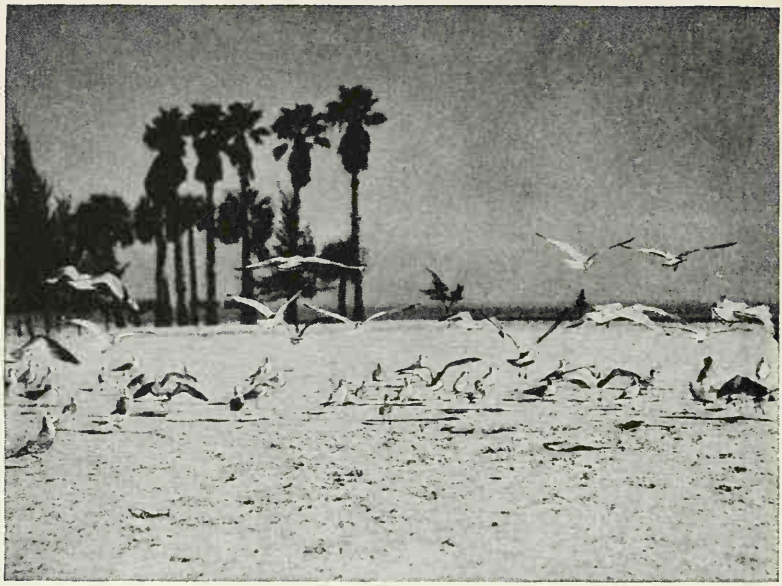
"I have been hoping to find a place where those birds are nesting. Unfortunately for me, they prefer a broad, level sand beach, while most of the keys around here are swampy and covered with mangroves."

"I know just the place you're looking for," Warden Hill broke in eagerly. "It's on Lonesome Key, down the coast about fifty miles. Right now the beach is covered with gulls' eggs, and a lot of terns are nesting there too. I'd be glad to take you and Bill down there. We'd have to camp out at night, because my boat is too small to bunk in, but if you don't mind roughing it, Lonesome Key is just the place for you."

"Excellent, that's just what I'd like!" replied the Professor. "I was hoping you would help us. When can we start?"

"Right now, if you want to," the warden grinned, scrambling awkwardly to his feet. "But I think you'd better pack some food and supplies first. I'm used to camping out in all kinds of weather, but maybe you'd be more comfortable with some mosquito netting and a blanket."

"Yes, I imagine we would," Professor Weston agreed, as he turned to smile at Bill. "And we'll have to explain our plans to Bill's parents. Suppose we start the day after tomorrow."



Great clouds of birds hovered over the beach

CHAPTER XIII

LONESOME KEY

The trip down to Lonesome Key was an uneventful one. Warden Hill's boat was not as fast as Cap'n Tim's *Silver Queen*, but it chugged stoutly along. The warden seemed to know every twist of the tricky channels.

It was long past noon when they sighted Lonesome Key. From a distance, the island looked like a low silver streak against the horizon. Then, as they came closer, they could see the broad white beach glimmering in the sunlight. Great clouds of birds hovered over it, their harsh, piercing cries audible for a long distance.

"There you are, Professor," the warden drawled. "I'll bet you will find more gulls and terns on that island than you can band in a year."

"There certainly are a lot of them," Professor Weston agreed. "I have hardly ever seen so many, even in their northern breeding places. Are you ready for work, Bill?"

"You bet," the boy answered, scanning the beach eagerly. "Where are we going to land?"

"There's a sheltered cove just beyond that little point," the warden said. "I have a dock there, and that's where I always anchor."

Bill and the Professor helped make the boat fast to a mooring stake beside the rickety, single-plank pier. Then, at Jim Hill's suggestion, they started off down the beach to see the nesting colony, leaving the lanky warden to complete his simple camping preparations.

"Gulls are pretty birds, aren't they?" Bill remarked, watching the gray-and-white parents hovering above the beach, and now and then darting out over the water. "What kind are they?"

"Those are laughing gulls," his friend answered. "Remember, when we watched one of them rob the pelican? Laughing and ring-billed gulls are about the only members of the numerous gull family that we will find nesting in Florida. Their other relatives prefer more northerly breeding places—some of them go even as far north as the Arctic Circle to rear their young. The gulls

A gull wheels gracefully in the air

are great travelers, and you will find many different kinds of them here in Florida during the winter."

At their approach, many more gulls had risen from the beach, circling wildly and uttering a long-drawn-out cry, "Hah-ha-ha-ha-hah! Hah-hah-hah!"

"I can see why they are called laughing gulls, all right," Bill remarked. "Sounds as if they're laughing at us."

"Be careful where you step," the Professor warned suddenly.

Bill looked down in alarm to see two dull gray, brown-spotted eggs on the beach ahead of him. In another minute he would have stepped squarely on them, for

they were not in a nest. Instead, they were in a small hollow in the sand, which kept them from rolling down the sloping beach. And Bill noticed many other hollows containing eggs.

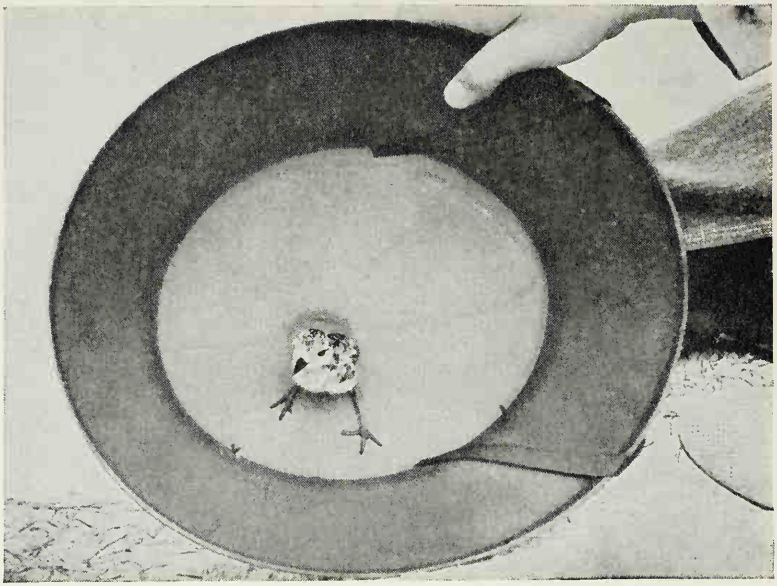
"Gee whiz," he exclaimed. "These birds certainly don't waste much time in nest building. Just look at all the eggs lying right out in the open."

"Yes, down here there's really no need for an elaborate nest," the Professor explained. "Gulls lay their eggs in these little hollows and, on pleasant days, they let the sun keep them warm. But in stormy weather the mother gull is careful to see that her eggs do not get cold.

"When the laughing gulls nest in the North, they build warm, substantial nests of grass and weeds. The birds are quite intelligent you see. When their young need warmth and protection, they are devoted parents. When this is not necessary, they save their energy for food gathering."

"Hi, look!" Bill shouted excitedly. "There's a baby bird. See him squatting over there by that bunch of grass?"

"Yes, isn't he a cute little fellow? There are lots of youngsters like him around, but they match their surroundings so closely that it's hard to tell them from tiny mounds of sand," answered the Professor. "They are able to run about soon after they are hatched. We can catch all we want for banding purposes."



A tiny baby plover poses in the Professor's hat

"Shall we start now?" Bill asked, eyeing the fuzzy baby gulls and wishing for an excuse to catch one of them.

"No, not just yet. Let's move on down the beach and see if there are more gull colonies."

Taking care not to step on any of the eggs or nestlings, they walked on down the shore, leaving the laughing gull colony behind. At first Bill thought the beach was bare and empty but, upon rounding a curve in the shore line, he came upon another flock of nesting birds.

"Say, these fellows don't look like laughing gulls," Bill remarked. "They're larger than the others were,

The Professor discovers a tiny tern in the grass clump

and they fly differently. See, their eggs are a lighter color, too."

"You're becoming quite observant, Bill," the Professor nodded approvingly. "These are royal terns, belonging to a different subfamily than the gulls. Let's stop and watch them."

"I wish you'd tell me something about them," Bill urged, as the two of them sat down on a sand dune. "I always thought gulls were lots larger than terns."

"As a rule they are," Professor Weston answered. "However, in this case the royal terns are the largest of the tern group, while the laughing gulls are numbered among the smaller gulls. When compared to the large

great black-backed gull, the royal tern seems quite small.

"Both gulls and terns belong to the *Longipennes* order, the name meaning 'long-winged' swimmers, and to the family *Laridae*. They are separated into different subfamilies."

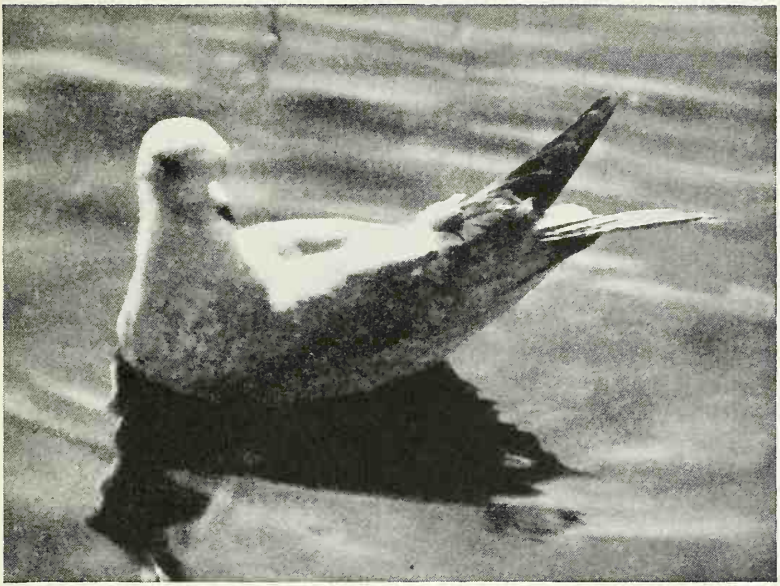
"How can you tell them apart?" Bill asked. "The longer I watch them, the more mixed up I get."

"There are several definite differences," was the answer. "Gulls have hooked beaks which they carry pointed straight ahead. Terns' bills are straight, and carried pointing downward. Most gulls have square tails, while most terns have forked tails. Gulls get their food by alighting on the water. Terns hover and then plunge into the waves for their food, just like that one out there is doing."

The Professor pointed to one of the terns that was hovering some distance above the water, his wings beating rapidly to keep him in the same place. Suddenly the bird plunged downward with great speed, disappearing from sight for an instant and then darting into the air once more.

"A gull would never do that," the bird bander continued. "Instead, it would alight on the water and snatch its prey from a swimming position. A gull never dives beneath the surface."

Bill and the Professor were still sitting on the sand dune watching the tern colony when the lanky bird



"Is that a fish over there?" a gull asks himself

warden joined them. He had cut across the center of the island, stalking awkwardly yet noiselessly through the tall grasses, coming up from the rear, so that the birds did not take fright at his arrival.

"Did plume hunters ever bother gulls and terns?" Bill asked. "I can see why they'd shoot egrets and flamingoes, but these fellows look too small to be of much use for hat decorations."

"You guessed wrong there, youngster," the warden drawled, folding his long legs under him and sitting down on the sand dune. "I don't think there was a bird too small or ugly to miss the hat makers. Why, they even used birds as small as the hummingbird and

homely as the buzzard, so of course, they wanted lots of gull and tern feathers."

"That's right, Bill," the Professor nodded. "Hunters shot them by the hundreds before laws were passed to protect them. Sometimes they just tore the wings from the living birds and then left them to die in agony. Even the tiny least terns, that are only nine inches long, were almost exterminated."

"I knew a tern hunter once," Jim Hill said, his usually drawling voice harsh with anger. "Compared to him a polecat is a gentleman. He liked to brag about killing nearly ten thousand terns up in Virginia in just one season. Most of them were least terns, too."

"How did he do it?" Bill asked. "I don't see how anybody could kill that many birds, even if he wanted to."

"It's easy, if you know how. Terns are easy to kill because they are so sympathetic. If a hunter can just bring down one of them, all the others will flock around and try to help their pal. In that way a hunter can get almost the whole flock.

"Back in the old days, if a hunter couldn't get the first tern, he'd tie a handkerchief to a stick and toss it into the air. The terns thought this was a falling bird and they came right over."

"That was a mean trick!" Bill burst out indignantly.

"Sure, but no trick was too mean, just as long as the hunter could get a fistful of feathers."

A ring-billed gull for the Professor's record book

"I have always admired the arctic terns," remarked the Professor, turning the conversation to more pleasant topics. "Tiny as they are, they nest in the arctic, and winter in the antarctic. To make that trip, from pole to pole twice a year, they must fly more than twenty-two thousand miles."

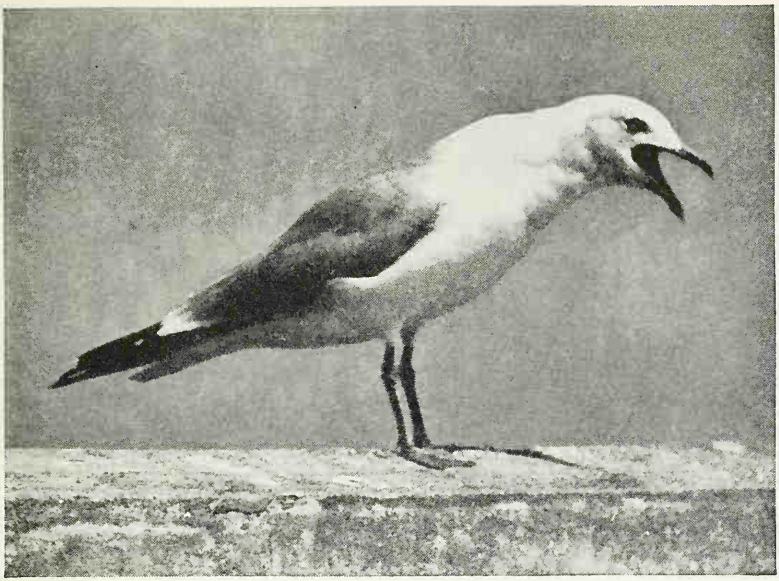
"There must be a lot of different kinds of gulls and terns," Bill said.

"Yes, there are about fifty species of each found throughout the world. Of course not all of them live in this country. Most of them prefer the seacoasts, but some of the gulls are often found far inland. In spite of the way man has usually persecuted the birds, one city has shown its appreciation to the gulls by erecting a monument in their honor. And, strangely enough, that city is hundreds of miles from the sea."

"That's funny," Bill said. "Where is it?"

"Salt Lake City, Utah, and I've seen the monument with my own eyes. There are two bronze gulls on it, and a tablet explains that the birds once put an end to the great swarms of black 'crickets' which were destroying the farmers' crops. Some gulls are fond of insects and they've even been known to eat mice."

"Well, I never knew that," Jim Hill slapped his battered hat against his bony knee in great surprise. "I always thought gulls lived along the coast and just ate fish. I declare, Professor, I used to think I knew almost everything about birds. Now I feel like a greenhorn."



A ring-billed gull, obviously upset and telling the world about it

They watched the terns until the sun sank like a great red ball, into the water. At first the sun's edge just seemed to be touching the distant horizon. Then it sank lower until half of the glowing orb was visible. A few minutes later, only the tiniest rim of the sun could be seen above the horizon. In a short time even that had disappeared, leaving the western sky aglow with the rich red-and-gold clouds of sunset. This riot of color was reflected more modestly in the east, and overhead a bright star appeared in the darkening sky. Evening comes quickly in the South and, before the three bird enthusiasts could return to their camp, night had fallen.

For a time they sat around the campfire, listening to the bird cries that drifted faintly down the breeze from the rookeries along the beach.

Soon after supper the breeze died down and the monotonous "Bzzzzzz" of a mosquito sounded close to Bill's ear. The boy slapped at it vigorously and then looked up to see the Professor and the warden doing the same. In a few seconds the air seemed to be filled with the buzzing, biting insects.

"The 'skeeters come out as soon as the offshore breeze dies down," Jim Hill explained between slaps. "They'll eat us alive if we don't get under our nets."

The lanky warden was already crawling under his pup tent, and Bill and the Professor were not long in following his example. As the boy stretched out luxuriously inside the snug canvas-and-net walls, he could hear the mosquitoes buzzing hungrily outside. A couple of expert slaps soon put an end to the wily insects that had entered with him and, in a few minutes, the harmless buzzing of the others had lulled him to sleep.

Sunrise on the island . . .

CHAPTER XIV

SEASHORE BABIES

Next morning the three were up before dawn, and Warden Hill had a pan of bacon sizzling over the campfire just as the eastern sky was beginning to flame with the red-gold sunrise. The blue Gulf had the freshly laundered look that Bill knew it took on at the beginning of every summer day.

When they approached the rookeries, they found the birds awake and already busy with their day's activities. The parents were wheeling gracefully in the air above their nests or else darting about over the waves.

"Must be a school of fish out there," Jim Hill said, pointing to the cloud of birds hovering just above the line of breakers. "Too bad for the minnows, but good luck for the birds. Sometimes they have to fly a long ways before they can catch any breakfast. Now, Professor, what's on the program for today?"

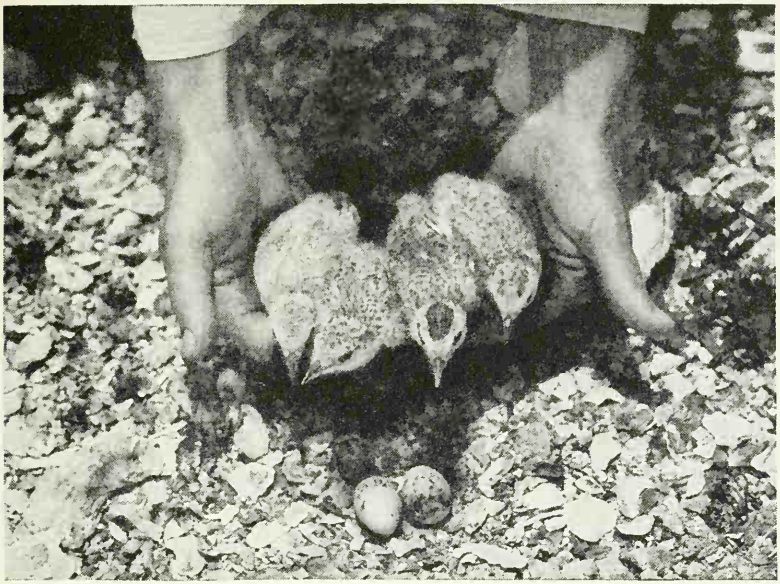
"We'll band the laughing gulls first, and then move on down to the tern colony," the ornithologist answered, laying out his banding tools. "Bill, you're official catcher, Warden Hill will hold, and I'll band. In that way we can get the most done in the least time."

"Okay," Bill laughed, starting after the baby gulls.

"Be careful," the Professor warned. "Don't step on any of them."

Bill was already finding it hard to keep from stepping on the fuzzy nestlings. The whole beach seemed to be alive with them, and every piece of driftwood, every sandheap, grass clump or shell served as a hiding place for more of them.

All the while Bill was chasing the baby birds, the anxious parents were fluttering around his head. They came so close that the wind from their wings fanned his face, and occasionally they even brushed his head with their wing tips. While part of the colony's young were already hatched and scampering about, many of the spotted eggs still remained in the nest hollows and, while he chased the nestings, Bill also had to take care not to step on these eggs. Altogether it was a difficult



The Professor holds four baby terns

task, and the boy was breathless and panting when his fingers finally closed around one of the fuzzy youngsters.

"Don't squeeze it," Jim Hill warned. "It's mighty tender."

"I'll be careful," Bill promised, holding the soft little creature against his cheek for a minute before handing it over to be banded. "I wish we could put colored bands on them the way those other banders did up North," he added.

"I do too," agreed the Professor, busily fitting a band loosely about the baby gull's ankle. "But I'm afraid that is out of the question for us. Colored banding is still in the experimental stage."

When the band was adjusted to his satisfaction, the Professor placed the nestling on the beach. "Run along now, little fellow," he said. "Go tell your parents there's nothing to worry about. Hurry up, Bill. I'm ready for another candidate."

They worked at the laughing gull colony all morning. Then, after lunch, they moved down the beach to the tern rookery where they repeated the process. For a while Bill tried to keep track of the number of birds banded but, long before noon, he lost count. By evening the Professor's supply of bands was exhausted, and the three hard workers returned hungrily to their camp for supper.

"Do all sea birds lay their eggs right out on the open beach?" Bill asked as they sat watching the sun sink below the horizon.

"Oh, no, even gulls and terns often nest in rock clefts and sometimes in grassy marshes," the Professor answered. "Other sea birds belonging to the *Tubinares* order, nest in burrows under the ground. This order includes the deep-water birds that are usually found far out over the ocean. I doubt very much whether they are even seen in Florida, for most of them prefer to stay in the northern part of the world."

"What does the name *Tub-i-nar-es* mean?" Bill added, pronouncing the big word very slowly.

"It means tube-nosed, and members of the order are usually referred to as tube-nosed swimmers. As you

know, most birds' nostrils are merely two slits in the upper halves of their bills. However, in the case of the *Tubinares* order, the nostrils are enclosed in tubes that open on top of the birds' hooked beaks.

"The best known members of this family are the petrels and the albatrosses, both lovers of the open sea. They snatch their food from the surface of the water as they fly, and only the important business of rearing a family will keep them on land for any length of time."

"Do they all nest in burrows?" Bill asked.

"No, not all of them. The albatrosses lay their eggs on the ground on isolated islands. So far as we ornithologists know, members of this order lay only one egg each season. The petrels are the ones that dig the burrows. They are interesting birds and their nesting habits are unusual. Both the mother and the father birds incubate the eggs, one parent remaining on the nest during the daytime while the other flies far out over the ocean. In the evening the wanderer returns, and the stay-at-home comes out of the burrow uttering a soft little twittering song of greeting.

"At sea they have a strange habit of hovering close to the water and paddling with their webbed feet, as if they were walking on the waves. Petrels, you know, are often called 'Mother Carey's chickens' by the sailors. The name probably comes from the Latin words *mater cara*, meaning 'dear mother,' which was applied to the Virgin Mary.

"Petrels are so seldom found on shore that Audubon had himself placed in a boat out in mid-ocean so he could study them. He was returning to America from France at the time, and the chance to study these far-flying birds was too good for him to miss."

"Who was Audubon?" Bill interrupted. "A long time ago you promised to tell me about him, but you never have."

"I've done a lot of talking lately," the white-bearded man laughed. "Warden Hill, here, works for the Audubon Society. Suppose you ask him to tell you about Audubon."

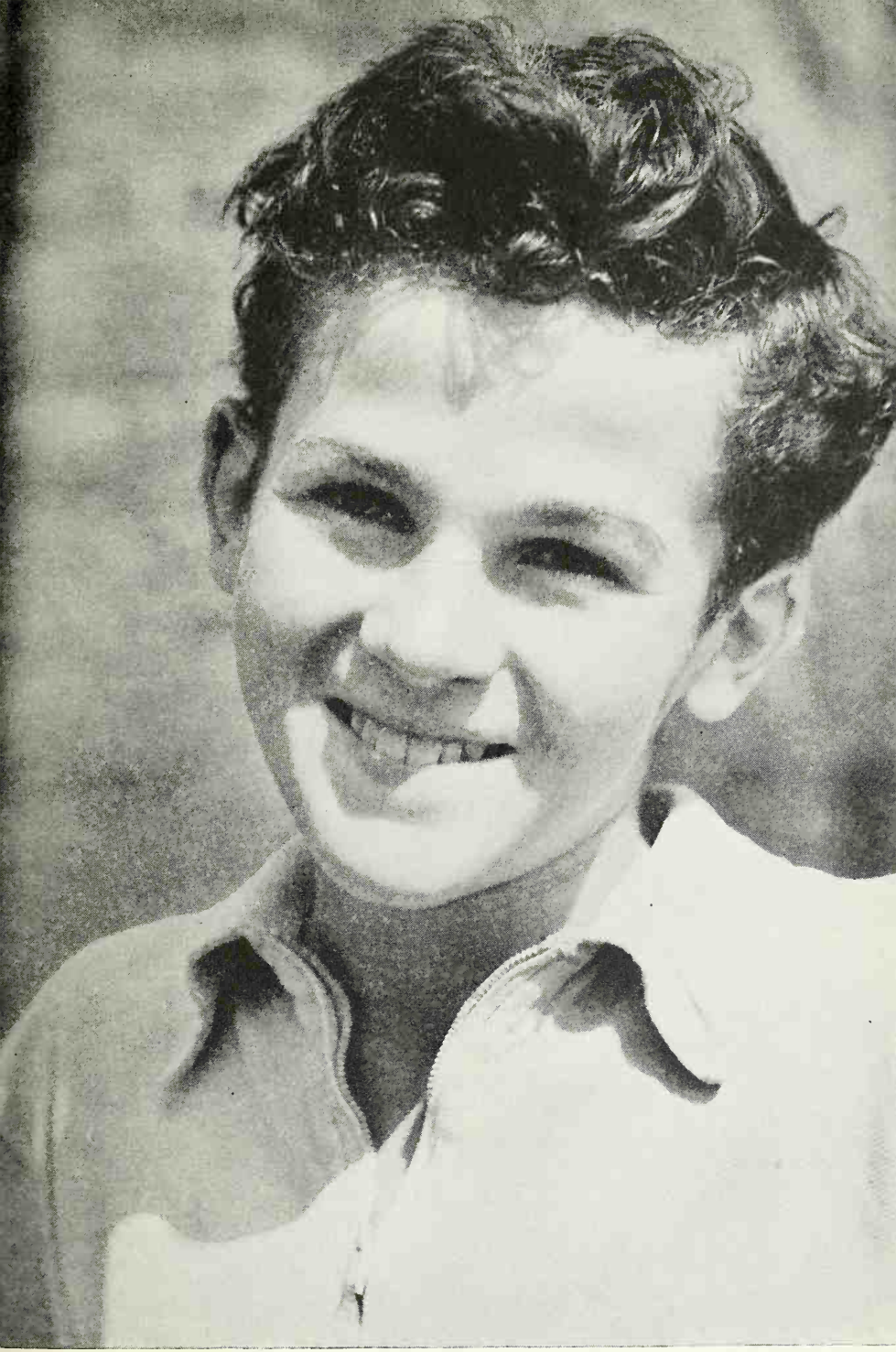
Bill turned eagerly to the warden.

"Will you tell me about him?" he asked.

"Yes, I guess I can," Jim Hill answered slowly, pushing back his battered hat and scratching his seaweedy hair. "When I got this job I wondered how the Audubon Society got such a funny name. First chance I got, I looked 'em up in a book. That fellow Audubon was a mighty smart man—I wouldn't have minded knowing him a bit."

"What did he do?" Bill demanded.

"Well," the warden drawled, "I reckon John James Audubon must have been a lot like you when he was a boy, Bill. He liked birds and spent all his spare time studying them. People thought he was a little crazy because, back in his time, there weren't many naturalists or scientists in America. Everybody was too busy



Bill turned eagerly to the warden. "Will you tell me about Audubon?" he asked

cutting down the forests and shooting the game to bother their heads about the wild life they were destroying. You see, Audubon lived at about the same time as Daniel Boone and all those other fellows who were kept busy settling this country."

"Audubon's a funny name," Bill remarked when the warden paused. "Was he some kind of foreigner?"

"In those days most of the people in this country were foreigners, I guess," Jim Hill answered. "The Revolutionary War hadn't been over very long, and the United States wasn't much more than a squawking baby nation."

"What country did he come from?"

"Audubon was born about 1785, on the Island of Santo Domingo. I got all this out of the book. His father was a French naval captain who had fought under Lafayette in the American Revolution. When Audubon was a little tyke, his father took him back to France where he grew up. Then he came to America, got married, and became a frontier trader.

"But Audubon liked birds better than business. He spent most of his time studying and painting them. I've seen some of the pictures he painted, and I think they are fine. I don't know a thing about art, but I do know when a picture looks like a bird."

"Audubon was a great artist," Professor Weston agreed. "His bird paintings are still ranked among the best ever made. In his day most art was lifeless and

stiff, but Audubon tried to show his birds in action. He drew them flying, feeding, nesting—and his pictures really seem to be alive. His mockingbird picture would please you, Bill, because it shows four of your olive-gray friends attacking a diamond-back rattlesnake that is making a raid on a bird's nest."

"Is that all he did, just paint pictures?" Bill asked.

"It took him a long time to do that," the bird warden replied, "almost a lifetime, because he painted every kind of bird in this country. His pictures finally came out in a book, and I understand that those books cost a lot of money today because there are only about two hundred of the first ones published in existence.

"But Audubon was more than just a painter. When he grew older, he saw how the birds were being killed by plume and egg hunters. He helped to start the wild life conservation movement, and the National Audubon Society was named after him. Today the Society has bird reservations in almost every state, with wardens to take care of them. I've been working for the Society for almost thirty years."

"What does a bird warden do?" Bill wanted to know. "Do you have to work very hard?"

Jim Hill rubbed his long chin and cocked a bright eye at the boy.

"No, a warden doesn't have to work very hard," he drawled. "He just starts at sun-up, and works right through until sundown. He's on the job every minute of

the day, winter and summer. And sometimes, just for a change, he works most of the night, too."

"Oh," exclaimed Bill, "that sounds pretty hard. What do you do all that time?"

"I have to patrol the reservation, check up on the birds, and try to keep them satisfied with their rookeries. I have to see that no animals or people bother them. I'm like a landlord with a lot of bird tenants.

"I have to make regular reports telling whether the birds are increasing and decreasing, and why. Altogether, I don't have much time for loafing, I can tell you. But I like my job and I'm happy out here among the islands. I wouldn't trade places with anybody else in this world."

"Do you ever have any exciting adventures?"

"Not lately. Back in the old days plume hunters used to shoot at me once in a while. A hunter put a bullet through my hat once, but that's as close as anyone ever came to hitting me."

"Why did they shoot at you?"

"Because they didn't like to have anybody tell them to stop killing the birds. Took some of them a long time to get it through their heads that plume hunting was against the law."

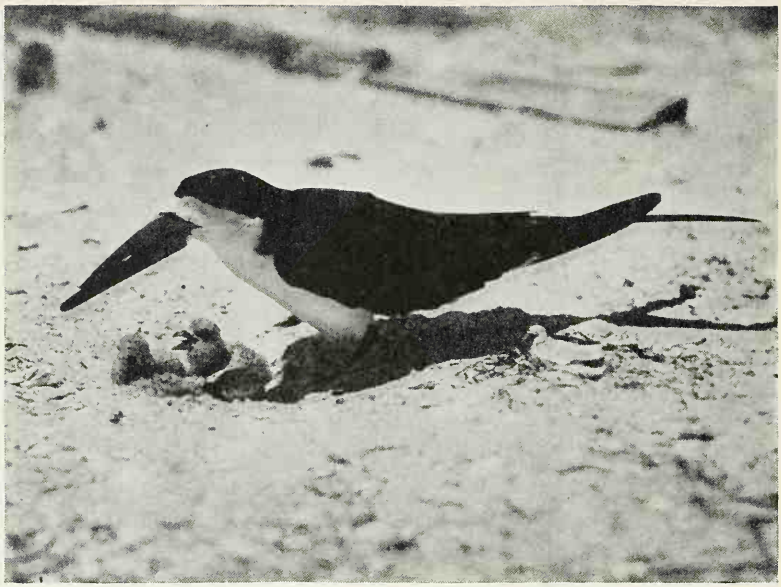
"Weren't several wardens killed before plume hunting was finally wiped out?" the Professor asked.

"Yes, one of my best friends was shot. We never could find the man who did it—I only wish I could."

The lanky warden fingered his rifle, and a grim look crossed his weather-beaten face. "I'm a peaceful man, but the man who was shot was the best friend I ever had."

"I'd like to be a warden when I grow up," Bill said after a short silence. "Do you suppose I could be one like you?"

"Sure, but you want to be more than just a plain dumb warden like me. You ought to go to school, learn a lot, and be an ornithologist like the Professor here. Anybody can carry a gun and be a warden."



Mother Skimmer waiting for one false move from her visitors

CHAPTER XV

SCISSORBILLS AND THUNDERCLAPS

The mid-afternoon heat had settled down over Lonesome Key and the two men were content to stay in camp in the shade. Warden Hill stretched his long body out in the shadow of a palm tree, tipped his battered hat over his sun-browned face, and took what he called his "afternoon snooze." Professor Weston, meantime, was busy with his notes and records.

Bill loafed around camp for a time and then, tired of doing nothing, wandered down the beach by himself.

Heat waves danced crazily up from the sand, and the glaring whiteness of the beach made the boy's eyes water. The gulls and terns did not seem to mind the heat though. The mother birds sat patiently on their nests while the fathers darted back and forth, bringing tiny minnows and bits of food to the babies.

The boy picked his way carefully through the nesting colonies and moved farther down the beach than he had ever been before. He was just stooping down to examine a sea shell when he noticed two strange, long-winged black and white birds flying leisurely along the shore. They flew close to the water and, at times, seemed to be dragging their long red bills through the surface of the waves.

"I never saw any birds like that before," Bill said to himself. "I wonder what they are. Guess I'll follow, and see if I can find more of them."

He soon discovered that it was hard work to follow the strange birds. Although they seemed to be flying with slow, lazy wing beats, they moved with surprising speed, and Bill had to run in order to keep them in sight. He was hot, tired, and out of breath when he rounded a slight curve in the shore and saw ahead of him a smooth, gently sloping stretch of sand.

Breathless though he was, he could not help giving a whoop of delight, for the sand was thickly dotted with the strange birds. He had found an entirely new nesting colony.

Bill found four spotted skimmer's eggs in a hole on the beach

"Boy, oh, boy," he said almost aloud to himself. "Just wait until the Professor sees this. I'll bet he'll be tickled."

The birds left their nests and flew a short distance down the shore when the boy approached them. Stooping to examine the first nest he reached, he found it to be much larger and deeper than the terns' nests. It was just a round hole scooped in the beach, with no lining of shell or grass. In it were four bluish-green eggs, closely dotted with brownish-purple markings. The eggs were longer and more sharply pointed than the terns' eggs, and were several times larger. Bill was careful not to touch them or harm the nest in any

way for he knew that sometimes birds will not return to their nests after strangers have disturbed them.

Moving farther into the nesting colony, Bill found many empty nest hollows and broken eggshells scattered about, but there were no baby birds to be seen.

"I wonder where they are, "he said, looking around.

Then he noticed a parent bird standing on the beach not far away, watching him with bright, anxious eyes.

"Hello, there—don't be afraid. I won't hurt you."

He took a step toward the bird. Instead of flying, the black and white bird merely ran a short distance down the beach. As it ran, it spread its wings and fluttered them in a strange, crippled way. Then it stopped and watched the boy again.

"Say, I believe your wing is hurt," Bill remarked to himself. "I'll bet I can catch you."

This was not so easy as he had expected, for the bird fluttered along the ground ahead of him, keeping just out of reach. Before Bill noticed where he was going, the bird led him some distance from the nesting colony. At last it spread its wings and flew swiftly away.

"You old bluffer," Bill exclaimed, staring after it. "You weren't hurt at all, you were just pretending. And I'll bet you were trying to get me away from your nest."

The birds were growing bolder when Bill went back to their nesting grounds again. Instead of retreating up

the beach, they swooped and darted around his head, so that their wing tips almost brushed his face. They did not attempt to harm him, but they uttered sharp, piercing cries that sounded almost as if they were calling, "Help! Help! Help!"

Several more of the birds tried to make the boy follow them by fluttering, and pretending to have broken wings, as the first bird had done. But this time Bill refused to be fooled.

"There must be baby birds around here," he told himself. "And I'm going to find them if I have to hunt all afternoon."

After a long search he discovered one, hiding under a thick clump of beach grass. The youngster was much larger than a tern baby. There were black speckles on its tan, fuzz-covered body. Its beak was longer and heavier and its head was more pointed than the other shore babies.

"I don't think you're as cute looking as some other baby birds I've seen," Bill told the youngster, cuddling it between his hands and holding its soft, warm body against his cheek. "But I like you better because I found you myself. Now run back to your mother and tell her everything's all right."

As soon as the baby was released, it scampered off across the sand, using its half-grown wings to balance its awkward body. Bill laughed out loud when the youngster stumbled over an uneven spot in the sand,

sprawled beak first into a hollow, and then picked itself up and hurried on, faster than ever. The tumble didn't hurt it at all.

After the first one, it was easy to find the young birds hiding under the grass clumps. Bill caught several of them, gently stroked their downy bodies, and then let them go. Tiring of this, he found a shady spot, half hidden by a tall clump of sea oats, and sat down to watch the adult birds.

They were suspicious of him at first, but after a time they grew accustomed to him and returned to their eggs. One mother bird had a nest hollow close to Bill's hiding place, and he was able to get a good look at her.

Alighting on the sand several yards away from her nest, the mother bird ran toward her hollow on short, awkward-looking pink legs that ended in small, webbed pink feet. She had a great deal of trouble getting herself settled in the nest hollow, but at last, after much fluttering and turning, she seemed to find a comfortable position.

When Bill got a good look at the bird's beak, he blinked, rubbed his eyes, and stared again. It was the queerest beak he had ever seen. Although both halves were thin and flat, fitting together edgewise instead of flatwise, the lower half was nearly twice as long as the upper half.

"Why, it looks just like a pair of Mother's scissors," he whispered to himself. "The color's funny, too. The

tips of it are bright red and the base of it is black. Seems queer that the baby birds just have ordinary-looking beaks—I guess they don't grow long until the birds are old enough to fly. I sure wish I knew what kind of birds these are."

Bill was so much interested in watching the nesting colony that he did not notice the heavy, black storm clouds rolling up in the sky behind him. It was not until a sharp gust of wind sent the beach sand whirling that he was aware of the change in weather.

"Gee whiz," he exclaimed. "It looks as if I'm going to get caught in the rain. Guess I'd better start back to camp."

Waving a hasty good-by to the birds, he started up the beach as fast as he could go, but he had only gone a short distance before the rain began to fall in great, hissing splotches. Lightning flashed from the cloud bank, and the thunder rolled deafeningly.

Since no shelter was near, there was nothing for the boy to do but keep on running. He headed toward a clump of palm trees, hoping to find a dry place under them. Then he stopped and shook his head.

"Guess I'll be better off out in the open during a thunderstorm," he decided. "They say it's dangerous to stand under a tree when there's lightning around."

He had no sooner said that when a blinding sheet of flame shot up from the palm cluster. An ear-splitting clap of thunder made the ground tremble. Showers of

sparks burst from the crown of the tallest palm tree. A moment later they died away, leaving the fronds blighted and faintly smoking.

"Whew!" Bill breathed when his knees stopped trembling. "Thank goodness I wasn't under that tree when the lightning hit it. I'd a million times rather be soaked than struck by lightning."

Like most summer squalls, the storm was soon over. The clouds rolled away to the south and the sun shone out again, sending its rays slanting upward from the western horizon. The empty feeling in Bill's stomach at this moment reminded him that it was almost supper time and he hurried down the beach as fast as his legs would carry him.

Warden Hill was cooking supper over the fire, and Professor Weston was busily hacking away at a loaf of bread with his hunting knife when Bill came within sight of camp.

"Hello, youngster," the warden grinned. "I see you got caught in the shower. Come on up to the fire and dry off."

"I almost got struck by lightning, too," the boy boasted. "It's a good thing I had sense enough to stay out in the open."

After telling all about his adventures, he turned eagerly to the Professor.

"I found a new bunch of birds. We haven't banded any like them before—I don't know what they're

called, but there's a whole colony of them a couple miles down the beach."

"What do they look like?" the Professor inquired, smiling at the boy's excitement.

Bill launched into a breathless description, and a pleased expression crossed the bird bander's face.

"Bravo for you, Bill," he said when the boy stopped to catch his breath. "You have found a black skimmer colony. I've been hoping we could band some of those queer birds this summer."

"Is that what they're called, black skimmers?"

"Yes, they are called skimmers because of the way they skim along close to the water. They catch their food by dragging the long, lower half of their beaks through the waves—you saw how they did it."

"Folks around here call 'em scissorbills or shearwaters," Jim Hill added. "Their bills look like scissors, and they cut through the water like a pair of shears. You're a better bird warden than I am, Bill. I didn't know there was a skimmer colony on this island—of course, I haven't been over here for awhile but I'm sure that the birds never nested here before this season."

"Can we band some of them?" Bill asked eagerly.

"Of course," the Professor laughed. "But eat your supper first. Not even a bird bander can work very well on an empty stomach."

A young eagle looks about from his tree-top home

CHAPTER XVI

THE EAGLES ROUT BILL

Bill was sorry to leave Lonesome Key when the time came but, as the Professor said, there was no excuse for staying. Their stock of bands was exhausted, and to remain longer would only disturb the hundreds of nesting birds.

"We'll go back through the inshore passage," Warden Hill promised, settling his battered hat firmly on his seaweedy hair and preparing to start the boat's motor. "I think we'll see more birds that way. I don't travel through the passage very often because the channel is

tricky and the boat is apt to run her nose into a mud bank. But today I think the tide is high enough to float us over the flats."

It was interesting to watch the green mangrove islands go slipping past. Sometimes the channel swung so close to shore that Bill could reach out and snatch leaves from the overhanging bushes. Once he saw a small, reddish-brown water snake sunning itself along one of the sturdy branches.

The distant sand bars were dotted with white egrets, their snowy feathers gleaming in the sunlight. Sedate blue herons waded in the shallows, squawking noisily when the boat frightened them away. Occasionally a big brown pelican would sail overhead, and clumsy cormorants took flight or dived to avoid the oncoming boat.

"Bill, this is an ideal time to hold that examination I've been threatening to give you all summer," the Professor remarked with a twinkle in his eye. "I'm curious to see how much you remember. You must have a good memory if you ever hope to become an ornithologist."

Bill squirmed uneasily.

"Sort of short notice," he objected. "I've been so busy chasing gulls and terns and skimmers for the past few days that I haven't thought of much else. Do you usually pop exams suddenly like that at your school classes?"

"I certainly do," nodded the Professor. "And that's exactly what they call them—'pop exams.' Are you ready?"

"I guess so," sighed Bill, his eyes wandering wistfully toward the shore. "Look," he added suddenly, "isn't that a nest over there in the big pine tree?"

At this point the shore was higher than usual. Scattered pine trees jutted into the sky, towering far above the surrounding grass and palmetto clumps. High up in one of the trees, securely lodged between two forked limbs, was the strange nest that had attracted Bill's attention.

Even from a distance they could see that the nest was an unusually large one, both in depth and in width. It extended up in a solid mass for five or six feet between the forked branches, looking like a great chimney set in the tree top.

"That's the biggest eagle's nest in these parts and I came this way so you could see it," the warden drawled. "It's been there at least four years. Each year the birds build it up a little higher. I'll bet it would take a mighty strong hurricane to blow that one down."

"It is one of the largest I have ever seen," agreed Professor Weston. "And look, here comes the eagle."

A great, broad-winged bird was flying majestically toward the nest with a silver fish clutched in its powerful talons. As it alighted on a pine-tree limb, the watchers saw two heads rise above the edge of the nest.

High up in the pine tree, between two forked limbs, was the eagle's nest

"There are babies in the nest," Bill exclaimed. "Gee, I wish I could get a good look at them."

"Sorry, boy, but I don't think we'd better take time to go ashore," said the Warden. "I want to get past this stretch of water before the tide turns."

"Here, use my field glasses," suggested the Professor, seeing Bill's disappointment, and handing him the binocular case. "You can get a good look at the eagles through these."

Jim Hill cut the speed of his motor and held the boat motionless while Bill focused the glasses on the great bird's nest.

He could tell that the huge aerie was roughly constructed of sticks, vines and seaweed. The young birds had disappeared below the rim of the nest where they were probably devouring the fish. Meanwhile, the parent eagle was perched on the supporting branch, and the boy had a good opportunity to study it.

The bird looked majestic and awesome, even at a distance. Its body was brown, and its powerful beak and strong legs were bright yellow. Its claws were hooked and dangerous looking. The most striking of all was its pure white head, neck, and tail. Bill watched until the eagle spread its great wings and flew away, uttering a harsh scream that sounded like "Cac-cac-cac!"

"He's gone," Bill murmured, regretfully lowering the glasses.

Warden Hill turned back to his motor, throwing it into gear once more. But instead of its usual even purr, the engine began to cough and sputter. The more Jim Hill tinkered with it, the more it sputtered. Finally, with a last mournful wheeze, it stalled altogether.

"Gas line must be clogged," the lanky warden muttered. "I'll have to heave out the anchor and take the motor apart."

Bill sat on the deck floor for a time, trying to look into the oily depths of the motor where the two men were probing. But he did not know very much about motors. His eyes strayed to the eagle's nest on shore.

"I've found the trouble," he heard the warden remark to Professor Weston, "but it'll take me about a half hour to fix it."

That gave Bill an idea.

"I'm going to get a closer look at that nest," he thought. "I can slip over the side and swim ashore. It isn't far, and they'll never miss me."

It did not take him long to put the thought into action. He peeled off his shirt, removed his shoes and stockings, tied the shoelaces together, and fastened them loosely around his neck. Both men were too busy to notice the gentle splash as the boy slid over the stern and swam with easy, noiseless strokes toward shore.

Less than five minutes later he was standing beneath the eagle tree, dripping wet but supremely happy.

"Now all I've got to do is to climb up," he said. "I'll yell to them when I'm in the nest."

This part of his scheme was the hardest of all. The great pine was larger around than a telegraph pole. Its smooth trunk soared in an unbroken column for nearly thirty feet above his head, without a single branch to give him a foothold.

"Here goes," Bill muttered, starting to climb.

The bark was slippery, and pieces of it came away in his fingers. It was impossible to find a good hold, yet the trunk was rough enough to scrape his knees and arms painfully. His fingers were soon covered with sticky resin so that bits of the slippery bark clung and added to his troubles.

In spite of all this, Bill inched his way slowly upward. He was more than ten feet up the trunk when, out of the corner of his eye, he saw the eagle returning. The great bird circled several times above its nest, uttering its harsh scream. Then it perched on the lowest limb of the pine tree and glared angrily down at him. A moment later it was joined by the second eagle.

Bill began to be extremely uncomfortable. He could feel the birds' sharp eyes boring into him and, when he looked upward, he could see their great hooked beaks opened to hiss at him. Both birds silently watched his progress.

One of the eagles left its perch, swooping down toward him and passing so close that he could feel the

wind from its powerful wings. At that moment Bill began to wish himself safely back on the boat. It was no fun to cling with both hands and both feet halfway up the slippery pine trunk, while a giant bird swooped angrily toward him.

He began to remember stories he had heard of how eagles attacked and carried off children. He gulped unhappily when he recalled how sharp and dangerous the birds' great carved claws had looked through the field glasses. They could do a lot of damage if they wanted to—and it began to look unpleasantly as though they would.

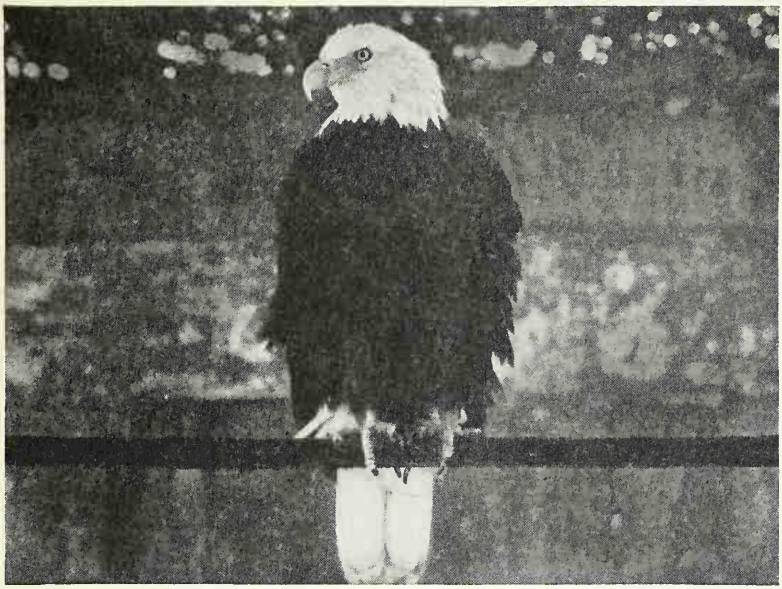
Then the second bird swooped toward him.

Instinctively, Bill ducked. He felt his hand slip, and he struggled wildly for a better hold. A bit of bark gave way under his fingers. His other hand slipped and, a split second later, he was half falling, half sliding to the ground.

Dazed but unhurt, he picked himself up.

He heard a triumphant scream above his head. Staring upward, he saw one of the great eagles circling above the tree top while the other was perched on the nest rim, still glaring down at the fallen intruder.

"Don't worry, you two," Bill called, rubbing his skinned arms ruefully. "I've learned my lesson. I wouldn't climb up there again for a million dollars."



As famous as the red, white, and blue—a mature American eagle

CHAPTER XVII

THE CLEAN-UP SQUAD

The two men had finished repairing the stalled motor by the time Bill reached the shore and started sheepishly across the narrow strip of water. He realized that they had witnessed his descent from the pine tree.

"Hello, fellow, come aboard," Jim Hill called, reaching a skinny but powerful arm over the rail of the boat to help him climb up. "Been eagle hunting, I see."

"You look somewhat the worse for wear," the Professor added, his eyes noting Bill's battle-scarred appearance. "Did you reach the nest?"

"No," the boy growled, half offended by their ability to size up the situation. "I got halfway up, and then the birds started to dive for me. I lost my hold and ended up right back where I started."

"Old Mammy and Pappy Eagle don't like to have folks bother them," the bird warden commented dryly, starting his motor once more. "We were all ready to come and pick up the pieces. I guess you got off lucky this time."

"Yes, you did," agreed the Professor. "Eagles don't usually attack human beings but, with their powerful beaks and claws they are well equipped to defend their young if necessary."

"Well, anyway, I tried," Bill answered grimly, looking back at the nest which was rapidly fading from sight in the distance. "I've always wanted to see an eagle, but this is the first chance I ever got."

"Haven't you ever noticed his picture on our silver quarters and fifty-cent pieces?" the Professor asked. "The birds you just tried to visit are the bald or American eagles, the official emblem of the United States."

"I didn't know they lived in Florida," Bill said. "I thought those eagles were found only in the mountains."

"People often make that mistake," the ornithologist answered. "As a matter of fact, the American eagle is found in almost every part of the United States. Since fish form the major part of his diet, he frequents the

shores of lakes and rivers, as well as the marshes along the coast. He seldom, if ever, nests far from his fishing grounds."

"Why is he called the bald eagle?" Bill wanted to know.

"Because of the white feathers on his head and neck," was the answer. "The term is misleading, because truly bald birds have no feathers at all on their heads. During the seventeenth century the term bald meant white or streaked with white. The wood ibis is bald, and so is the turkey buzzard."

"Do eagles really carry off children?" the boy asked. "I read a story once that told how one of them swooped down and stole a baby. I was scared he was going to do that to me, too, back there on the tree."

"I'm afraid that's only a fairy tale," the Professor smiled. "I've never found a single accurate record of that happening. However, eagle nestlings have enormous appetites, and the parent birds care for their hungry youngsters for several months before the babies are able to fly and hunt for themselves. Eagles often bully smaller birds into dropping their catches and, sometimes when they are unable to find enough other food, they do seize hens or lambs—but these offenses are not common. The bald eagle has more good habits than he has bad ones."

"Wish I'd known that before," Bill muttered to himself.

"Young eagles don't have white heads," Jim added

"Eagles are devoted parents," Professor Weston continued. "The adult birds mate for life, and apparently they live together quite happily. Year after year they return to the same nest, repairing it and making additions, until it becomes as big and bulky as the one we just saw."

"Young eagles don't have white heads," Jim Hill added, when the ornithologist paused. "They're bigger than their parents, too. I was a bird warden for a couple of years before I found out that the brown eagles were just young bald eagles."

"That difference in size and plumage has fooled many people," the Professor agreed. "Even Audubon,

who knew birds so intimately, made that mistake. He thought the immature birds were a separate species, and he named them 'birds of Washington.' Later study proved them to be young bald eagles, for, when they were three years old, the white feathers appeared on their heads and in their tails."

"What is the eagle's scientific name?" Bill wanted to know.

"I thought you'd ask that," grinned the bird bander. "Eagles are members of the order *Raptores*, meaning 'birds of prey.' With the hawks and kites, eagles belong to the suborder *Falcones*. The bald eagle is really a sea eagle while his close cousin, the golden eagle, is a land bird. The golden eagle's legs are covered with feathers, while the bald eagle's legs are bare—this is the chief distinguishing mark between the two bird cousins."

"Why does he stand for the United States?" the boy queried. "I mean, why do we put his picture on our money?"

"Because from earliest times man has used the eagle as an emblem of courage, strength, and power. To the Greeks and Romans he was a symbol of Jupiter, king of the gods. Roman soldiers placed bronze eagles on the standards of their legions, and a legion was everlastingly disgraced if the enemy captured its eagle in battle. The American Indian added an eagle feather to his war bonnet every time he did a courageous deed.

Naturally, when the United States wanted a great emblem, it chose the eagle."

"I'd give a million dollars to know as much about birds as you do, Professor," Warden Hill drawled, shaking his head in admiration. "Where did you learn it all, anyway?"

"Oh, I just happen to have a good memory," the Professor answered. "I've been picking up information for years. And, speaking of memory, Bill, we still haven't given you that examination."

The boy looked around for something else to distract the Professor's attention, but this time he could not escape. Warden Hill listened with an amused grin on his weather-beaten face while Professor Weston put Bill through his paces.

"We'll start with our most recent study," the ornithologist began. "I want you to tell me the difference between gulls and terns."

After a moment of thought, Bill gave the correct answer, also answering several other questions about the long-winged order. Then the Professor asked about pelicans, cormorants, and frigate birds, giving Bill a word of help now and then and nodding his approval every time the boy answered correctly. After a while, Bill really began to enjoy himself. After all, this was more fun than school.

They were just ready to start on mockingbirds when a most unpleasant smell reached their nostrils. Bill

A trio of buzzards waiting for a meal

promptly held his nose, the Professor got out his handkerchief, and even Jim Hill screwed up his face.

"Phew!" Bill exclaimed. "Something's awfully dead around here. Let's get away quick."

"I see what's the matter," the bird warden said. "It's that bunch of dead fish washed up there on shore—they certainly have brought out the turkey buzzards. There must be a couple of dozen of them there on the beach and in the branches of those trees."

The boat soon pulled upwind from the unpleasant place, and the three were able to watch the buzzards without having to smell the decaying fish. The birds didn't seem to mind the odor for they were gorging themselves as if they hadn't eaten a square meal for weeks.

"Hey, young man, don't you want to go over and get acquainted with those fellows?" Jim Hill asked, nudging Bill. "We'll wait here for you if you do."

"Ugh, no thanks," Bill answered. "Buzzards sure are ugly things," he added, almost shuddering as he studied them through the field glasses.

They were nearly as large as the bald eagle, but they had none of the eagle's majestic dignity. Their heads and necks were naked, the bare reddish skin being deeply wrinkled and covered with unhealthy looking white blotches. The buzzards' eyes were set close to their long, dull-whitish beaks and their nostrils were unusually prominent, flaring openings. Their legs and

A close-up of the buzzard division of the clean-up squad

feet were a sickly flesh color, and their coarse feathers brownish-black.

"They are ungainly looking birds," the bird bander agreed. "The only time they appear to have any grace or beauty is when they are floating high in the air, their broad wings outstretched and motionless. Look, there are several buzzards sailing overhead now—see how graceful they are."

"Uh-huh," Bill grunted, his head tipped far back so that he could see the birds more clearly. "Say, you know I don't think I'd mind being a buzzard, myself, if I could fly the way they do. What good are they, anyhow?"

"Why, those birds perform a great service as scavengers in warm countries. By cleaning up dead matter and refuse, they help the people in southern climes stay healthy. Because of this service, and because of the bird's ugliness, man has protected the buzzard, while he has destroyed other equally useful but more beautiful birds. But even the buzzard has been killed at times to provide feathers for the hat business."

"Professor, tell me this," Jim Hill said, "I've heard lots of arguments about whether a buzzard sees his food or smells it. Some folks say he flies up high so he can spy a dead horse or pig, and others say he smells 'em. Most dead things do smell powerfully strong, but I'd like to know for certain."

"There has been a lot of scientific dispute about that," Professor Weston answered, "but I think it's pretty well agreed now that the buzzards find their food by sight. I know one man who placed a stuffed deer out in an open field, and immediately the buzzards located it. He put some decayed meat under a cloth, and not a bird came near. As soon as one bird spies a feast and descends, other birds can be seen coming from great distances. Apparently they watch their hunting comrades, too, while looking for something to eat."

"Don't they ever eat anything but dead things?"

"Not often. Sometimes they eat snakes, toads, rats, and mice, but they're really members of the clean-up

A buzzard gracefully spreads his wings

squad and they do their duty well. I suppose you want to know their scientific name," the Professor added with a smile.

"You bet I do."

"Well, like the eagles, hawks, and other birds of prey, buzzards belong to the *Raptores* order. Their suborder is *Sarcorhamphi*, or carrion feeders.

"Buzzards are really vultures, being close cousins to the great condor of the Andes and to the almost extinct California vulture. Their common name is somewhat misleading, for the term 'buzzard' is also applied to several of the hawks, especially the red-shouldered hawk and the broad-winged hawk. The term 'turkey'

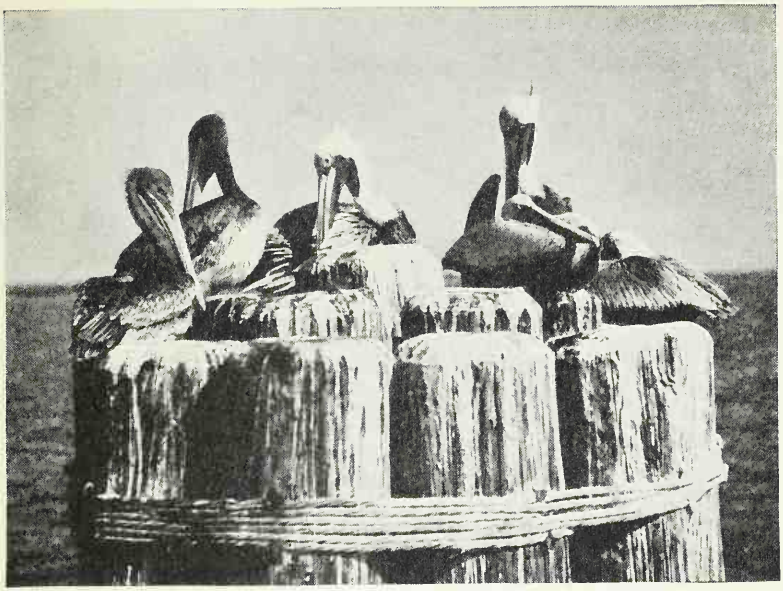
is added to the buzzard's common name because, when seen from a distance, the bird does resemble a turkey."

"Where do they nest?" Bill asked. "I suppose since they fly so high, they build their nests up high, too."

"I'm afraid you guessed wrong that time," the Professor chuckled. "Buzzards are too lazy to build nests. Instead, they lay their eggs on the bare ground or, if a hollow stump is handy, the two eggs are laid there. These eggs are white, with purple-brown splotches. When the young birds hatch, they are covered with a light buff or white down, but even as babies, the buzzards are ugly. They are fed on carrion disgorged from the stomachs of the adult birds. They're not a pleasant family at any time during their whole lives, although they are useful. Buzzards are usually considered southern birds, but they are found as far north as New Jersey and across the continent to California."

"I guess every place needs some cleaning up," Bill remarked. "No matter whether it's North, South, East, or West."

"That's right, and the buzzard is Johnny-on-the-spot to do it," smiled the Professor. "Look, there's home looming up on the horizon. I wonder whether anything has happened while we've been away."



A social gathering of pelicans

CHAPTER XVIII

FIRST-AID FOR AN INJURED PELICAN

Something *had* happened while they were away. The bird banders discovered it when they reached home after bidding Warden Hill good-by. That something was announced in a two-day-old telegram on the desk.

Professor Weston showed it to Bill that evening when the boy came over to look at the wire bird cages. Of course the bird bander had closed all his traps before leaving on the trip to Lonesome Key so that no birds could get into them while he was away. But as soon as he came home, he had set them again.

"Dave Martin is coming down to visit me," the Professor explained. "Remember, I told you he was my college assistant and that he had been hurt in an automobile accident early this summer. Dave is out of the hospital now, and able to get around on crutches. He's coming down here to Florida to gain strength—and he's due to arrive tomorrow."

"Oh," Bill's face fell. "Does that mean you won't want me to help you any more?"

"I should say not. I'll need your help just as much as ever, more than before, probably, because we'll have to keep Dave happy so he can get well in a hurry. It must be pretty hard for him to have to hobble around on crutches, for he has always been so active. I know you will like Dave, Bill, and he'll like you. You ought to become great friends."

"Maybe." Bill's voice sounded doubtful. He couldn't help feeling just a little jealous. He had thought of himself as the Professor's assistant for so long that he hated to share the honor with anybody. Now that the real assistant was coming, Bill was afraid that he might not get the chance to go on all the interesting bird-study trips with the Professor.

"I don't see why he had to come down here to get well and spoil all the fun," the boy muttered grumpily to himself later that evening when he crawled into bed. He gave his pillow an angry whack in the darkness. "Why couldn't he stay up North and get well there?"

Bill was still feeling grumpy and resentful when he awoke the next morning. He scrambled sulkily out of bed and went down to the beach for his early morning swim. Even that did not help his bad humor very much. He felt even worse later on for, while he was eating his breakfast, he looked out of the window and saw Professor Weston come out of his yellow cottage, lock the door, and walk briskly away.

"I'll bet he's going now to meet that fellow," Bill thought, scowling at his buttered toast.

"Why, son, your face looks black as a thunder cloud," his mother said. "What on earth is the matter?"

"Oh, nothing—except that the fellow who helps Professor Weston at college is coming down here. Now I can't be the Professor's assistant any more."

"Did the Professor say that?"

"No, he said I could help him more than ever, because the assistant's been hurt and has to walk on crutches. But—but he's probably bossy and stuck-up just because he goes to college," he finished crossly.

Mrs. Elliot laughed. Then she shook her head reprovingly. "Bill, I believe you are jealous. If the young man has been injured, it seems to me that you can help him a great deal. At least, you should be kind enough to wait and see him before you decide not to like him."

After a time Bill went down to the beach. With hands thrust deep into his pockets, head bowed, and

feet kicking viciously at shells and bits of driftwood, he walked gloomily along the shore.

He had just reached the place where the highway swung close to the beach when he heard an automobile approaching. Brakes screeched and a horn tooted.

"Hi, Bill," a voice shouted. "Come here. You're just the one I'm looking for."

Bill looked up to see his old friend Mike Cavanagh waving at him. The Irishman drove his truck to the edge of the road and turned off the motor. He had climbed out and was peering into the back of the big van when Bill reached him.

"What's the matter, Mike?" the boy asked.

Instead of answering, Big Mike pulled out a large cardboard box and placed it on the ground. Something inside it rustled mysteriously.

"Take a look," he directed. "Easy now, lad."

By this time all of Bill's curiosity was aroused. Carefully he did as Mike told him, lifting one edge of the box lid and peering inside. At first all he could see was a brown shadow. Gradually the shadow took shape until the boy could distinguish a long beak, big round eyes set in a white-feathered head, a chestnut neck and a brown body.

"It's a pelican!" Bill exclaimed. "Where did you get him, Mike? What are you going to do with him?"

"I found him down the road," answered the Irishman, "and I think his wing is broken. My brother

A pelican can be graceful when he chooses

Tim told me how much you knew about birds, so I said to myself, 'Mike, that pelican is in trouble and Bill is the lad who can fix him up.' Was I right?"

"Were you right? Well, I should say so!" Bill exclaimed. "I'll get the Professor to help me fix his wing. Maybe we can put splints on it the way the doctor did when I broke my arm last summer. I wonder how he happened to hurt himself."

"My guess is that he flew into a telephone wire," Big Mike replied. "He was flopping along the edge of the road not far from a telephone pole when I found him. I guess he was still sort of groggy, because I had an easy time catching him."

Another thought struck Bill.

"How am I going to get him home?" he asked.

"That's easy," Big Mike grinned. "Hop into my truck and I'll take you there in a jiffy."

Bill was so delighted with the bird discovery that he had forgotten all about his bad humor. In fact, now he had even forgotten that the Professor's assistant was to arrive that day. He was too excited to remember, even when Big Mike slowed down at Bill's home.

"We'd better take the pelican over to the Professor's cottage," he directed. "He'll know how to fix the wing. Then after that I can carry him home myself."

"All right," nodded the Irishman. "Here we are."

A stranger was sitting on the Professor's steps when Bill climbed off the truck and hurried up the walk.

"Hello," a young dark-haired man smiled a greeting.

"Hello," answered Bill. "Where's the Professor?"

"I'd like to know that, too," was the answer. "I've been sitting here on his steps for nearly an hour."

Big Mike came striding up the walk, carrying the cardboard box containing the injured pelican.

"Where shall I put him?" he asked.

"Around in the back yard, I guess," Bill answered. "Gee whiz, I wish the Professor would come home. The pelican's wing ought to be fixed right away, but I don't quite know how to do it."

"What's the matter?" the young man asked, noting Bill's worried look. "Is something wrong? Maybe I can help."

Bill looked at him doubtfully. The strange young man looked rather pale, but he had a nice smile.

"Big Mike found a pelican with a broken wing. We've got it in the box Mike just carried around to the back. I'd like to keep it, and I thought the Professor would help me fix its wing. But I guess he's gone to meet that assistant of his. You know I've been his assistant all summer. I don't know what will happen now, with this other fellow here."

"Maybe things won't be so bad as you expect," the young man sympathized. "Meanwhile, perhaps I can help you take care of the pelican. I know a little about birds, and I've had quite a bit of experience with broken bones lately. Would you like to have me try?"

"Well—" Bill looked at him doubtfully. "Do you really think you could?"

"Sure thing."

The young man reached up to the porch behind him and dragged out a pair of crutches.

"Just wait until I get these wooden legs of mine adjusted, and then we'll have a look at the pelican."

While Bill stared in open-mouthed amazement, the young man raised himself slowly to his feet, settled the crutches under his armpits, and then grinned at Bill.

"Sort of hard to get used to going about on four legs," he said, "especially after you've spent most of your life on two."

At last Bill found his voice. He had been so excited about the pelican that he never suspected who this man was.

"Say," he gasped. "You're Dave Martin."

"That's my name," was the answer. "Come on, let's go look at your pelican."

Bill followed Dave Martin in amazed silence. He couldn't think of a word to say. Then, when he remembered all the things he had said about the Professor's assistant, he squirmed in embarrassment. He wanted to dive right through the Turks'-cap hedge and run. It was only his interest in the injured pelican that kept him from bolting.

Big Mike had placed the box under a palm tree in the Professor's back yard. He was kneeling on the

grass, staring at the injured bird when Dave Martin and Bill joined him.

"He doesn't seem to be hurt anywhere except his wing," the Irishman said. "Do you think there's any chance of fixing it?"

"We can try," Dave Martin smiled, as he peered into the box. "It all depends on where the wing is broken. If the break is at a joint, there's not much hope. But if the break comes toward the middle of a bone, old Mr. Pelican may be able to fly again after it mends."

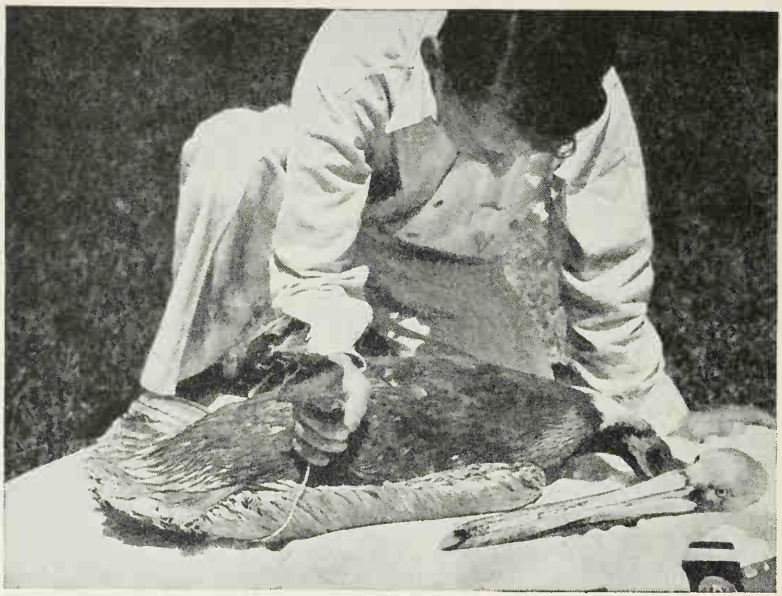
Under Dave Martin's directions, Big Mike and Bill spread a blanket on the grass and laid the pelican on its back in the middle of the blanket. After a few futile struggles, the big bird lay quiet. He made a good patient, and made only one attempt to snap at Bill with his long beak. After that, the boy was careful.

"That break will heal all right," Dave announced after a brief examination. "It is in the middle of his large wing bone and it can be set very easily."

"I'm mighty glad to hear that," Big Mike said. "I can't help liking these queer-looking creatures. I don't know as much about 'em as Bill, here, but I enjoy watching them just the same."

"I can understand that," nodded the young man. "Will you stay and watch us?"

"Thanks, I'd like to, but I have a big load to pick up before evening, so I guess I'd better be traveling,"



Beaky's wing receives first-aid treatment

the big Irishman answered regretfully. "I'll stop in and see the pelican later."

"Now let's get busy," Dave Martin said, after they had watched Big Mike's truck disappear down the road. "We have lots of work to do."

"Gee," the boy answered in an embarrassed voice. "It's awfully nice of you to help—after the way I talked about you. I didn't see your crutches, and I never once thought that you'd turn out to be Dave Martin."

"Oh, that's all right. Don't let it worry you. Come on now—you hold him so he can't jump and hurt himself while I try to set the bone."

Carefully the bird-bander's assistant bathed the injured wing, working the broken bones back into place with gentle fingers. Then, using bandages Bill brought from home, he bound the wing firmly to the bird's side so that it could not try to fly and tear the bones apart again.

"Will he be all right now?" Bill asked anxiously.

"He should be," was the answer. "Now all Mr. Pelican has to do is eat, sleep, and stay happy until his wing has a chance to mend. You can rig up a cage for him, and everything will be fine."

They were just tying the final knot in the bandage when Professor Weston came hurrying around the corner of the cottage.

"Hello, Dave, welcome to Florida," he called heartily. "I certainly am glad to see you back on your feet once more."

"Greetings, Professor," the young man answered. "I'm ten times gladder than you are to be here."

"But how did you come, that's what I want to know?" the white-bearded man asked. "I waited at the railroad station in town for nearly three hours. When the train arrived and you weren't on it, I was afraid you'd had a relapse and couldn't come, after all."

"I'm sorry you had such a long wait, Professor," Dave Martin said. "I guess you didn't have time to get my letter, telling you that I was coming on an

earlier train. I was so glad to get out of the hospital and back on my feet—even though I do have to use a pair of wooden legs to help me along—that I caught the first train I could."

"But how did you get out to the beach?" the Professor persisted.

"Oh, I got a ride on a baker's truck. That was easier than waiting for the regular beach bus. I had a good time sitting on your steps in the sunshine. And then, just when I was getting lonesome, along came Bill with an injured pelican. It seemed like old times, working with birds again."

"So you and Bill have already met," the Professor smiled at his two assistants. "I know you'll be great friends."

"Sure thing," agreed Dave. "We haven't exactly met—we didn't bother about that. But I knew Bill the minute he came up the walk. After all the letters you've written about him, I'd have recognized him anywhere."

Bill felt grateful to the dark-haired young man for not saying anything about his unpleasant greeting. In spite of himself, the boy was beginning to like Dave Martin. He wasn't a bit stuck-up or bossy. In fact, he seemed a lot like Professor Weston when he talked to him. And he knew a lot about birds. He had fixed the pelican's broken wing with the skill of an expert.

"Just look here, Professor," the boy said eagerly. "See what Big Mike found for me. Dave has already fixed his wing. Do you suppose old Mr. Pelican will get to be tame? I'd like to keep him for a pet."

"Yes, you should be able to tame him," the bird bander said, kneeling down to examine the bird. "Pelicans make fine pets. If you are kind to him, he'll probably be following you around in a short time."

A plover scurries down the beach looking for food

CHAPTER XIX

BILL GOES FISHING

"Is it very hard to be the Professor's assistant in college?" Bill asked Dave Martin.

The two were in a rowboat fishing in the sunlit waters of the bay. Professor Weston had sent Dave out to get as much sunshine and fresh air as he could —so he would get well and strong in a hurry. Dave had asked Bill to go along.

"No, it isn't hard, because the Professor is such a fine man to work with," the young man answered, baiting his hook. "Besides, I just have to do the things

you've been doing all summer. You don't call that hard work, do you?"

"I should say not," the boy answered, dropping his own hook and line into the water. "It's fun."

"It's mighty fine that you like to study birds," Dave Martin continued. "Keep it up. I think the Professor is really looking forward to having you come to college and help him."

"Will you be there, too?"

"I'm afraid not. I just have a couple more years of work ahead of me at the university and, by the time you're ready for college, I'll be out hunting a job as an ornithologist."

"I'd like to know what you do at college in the winter when it's too cold to go outdoors and watch the birds."

"Well, in the winter we spend most of our time working in the laboratory where the Professor teaches his classes. The students dissect a few common birds like pigeons and chickens. They cut them up and study their muscles, nerves, and bones. It's my job to help the students when they need it, and to keep their specimens stored in vats of preserving fluid."

Bill wrinkled his nose.

"I don't think I'd like that very well," he said.

"I don't like the smell either," Dave Martin grinned. "But I'm used to it and it's all a part of the job."

"Do you study too?"

"You bet. Last winter Professor Weston put me to work examining the contents of birds' stomachs in order to find out what kind of food they ate. We did that to prove that some of the shore birds weren't destroying valuable fish, as some of the fishermen claimed they were."

"How could you do that?" Bill asked, puzzled.

"It's this way," the bird bander's assistant explained. "Last summer a group of commercial fishermen asked the Government to let them shoot the herons, cormorants, gulls, and other shore birds because they were eating all the fish. The Government officials asked the Professor's advice, and we had to prove that the birds were innocent. It was like a trial in court.

"We collected about a hundred of the birds from that part of the country, and I had to open their stomachs to see what they'd been eating. Of course it took a long time, but we proved that the birds were innocent. I didn't find a single commercial food fish in any of their stomachs."

"Then what did they eat?" the boy asked.

"Mostly harmful fish—ones that destroy good fish. They also ate insects, mice, shellfish, and other things. We really proved that the birds were helping human fishermen and farmers."

"Oh, I remember the Professor said something about that when we found a boy shooting at cormorants because they spoiled the fishing. What else do you do?"

Mr. and Mrs. Pelican, taking life easy

"I've studied a few bird diseases. Birds get sick, just as people do, and it's the ornithologist's job to discover the causes so that he can keep the disease from spreading.

"Then too, every so often, we take a census of the birds. We go out on a field trip and record all the birds we see in a certain area. By comparing our notes with records from other years, we can tell in a general way whether there are more or less birds than usual."

"Say, I'd like to do all that. It sure sounds interesting," Bill exclaimed. "Do you suppose I ever can?"

"Certainly, if you stick to it and work hard. I've enjoyed it, and I wouldn't trade jobs with anybody."

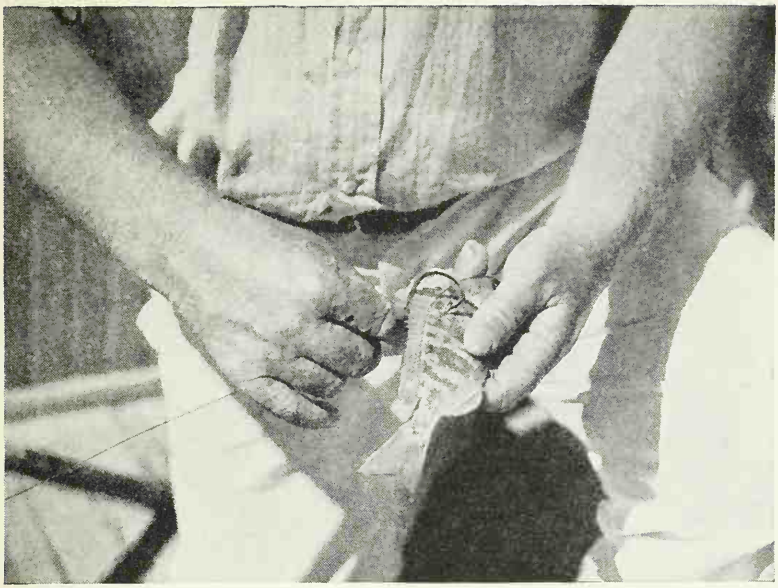
"That's what Jim Hill, the bird warden, said," Bill remembered. "I thought for a while I'd like to be a bird warden, but I guess it would be more fun to be an ornithologist."

"Well, of course, it's all according to the way you look at it," Dave said. Suddenly he jerked on his fishing pole bringing in an empty hook.

"Look at that," he laughed ruefully. "Some smart fish stole my bait while we were talking. Pull your line in and see if you've lost your bait too."

Bill was just ready to do that when his cork bobbed wildly and disappeared beneath the surface.

"I've got a bite!" he shouted, yanking excitedly on his pole. A moment later he pulled in a wiggling fish, scarcely larger than a minnow.



"You can't expect to land a whale every time!"

"It isn't as big as I thought it would be," he said in a disappointed voice.

"You can't expect to land a whale every time," Dave Martin laughed. "At that, your luck is better than mine. Look, here comes a pelican. I'll bet he envies you because you have that fish. It's just the right size for him."

"I wonder if he can catch it," Bill said, holding the fish up so the bird could see it. "Here, old boy, come and get it."

The pelican was quite interested. Craning his neck and flapping his broad wings excitedly, he circled above the boat, staring hungrily at the fish in Bill's hand.

Then, slanting his wings, he alighted with a gentle splash in the water close by.

"Toss it to him and see if he can catch it," Dave suggested.

"Here it comes," Bill called, throwing the fish so that it landed in the water just in front of the swimming bird.

Instantly, without giving the minnow time to dart away, the big beak reached out and grabbed. A moment later the bird threw back his head and swallowed.

"He got him, he got him," Bill shouted. "Stick around, Pelican, and we'll feed you some more."

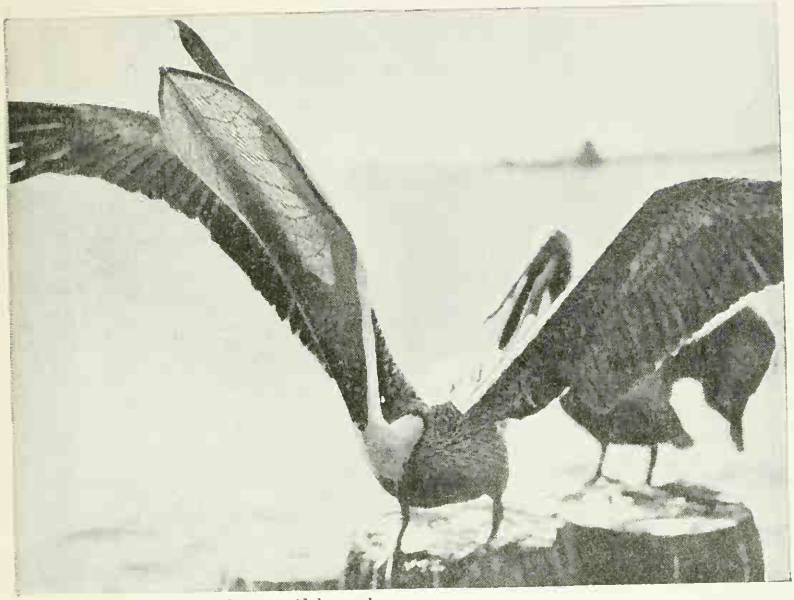
"You bet we will," Dave Martin agreed, pulling up his line with a second small minnow securely hooked. "This ought to be a feast day for you, Mr. Pelican. Catch this one."

This time the pelican was not quick enough. Although he grabbed at the fish as fast as he could, he caught nothing but a beak full of water. The fish had darted away to safety beneath the waves.

"Hi, look, I've caught a puffer!" Bill shouted suddenly, pointing to the round, air-filled balloon fish on the end of his line. "Just see how he has puffed himself up."

"Throw him to the pelican and watch the fun," Dave Martin suggested.

The puffer had deflated and returned to its normal size by the time Bill took the hook from its mouth.



The pelican made a wild grab

"Here, come and get it," he called.

The pelican made a wild grab, catching the puffer neatly in his big beak. Instantly the fish inflated itself again, puffing up like a round, yellow-green balloon. The pelican dropped him immediately.

"What's the matter, old boy? Was that too much of a mouthful?" Dave called, while both he and Bill laughed at the bird's surprised expression.

"I've got an idea," Bill exclaimed. "I'm going to take some of these home to my pelican. He ought to like them too."

"Is he getting along all right?" Dave asked. "I haven't seen him since I dressed his wing day before yesterday."

"Just fine," was the answer. "He isn't very tame yet, but I think he's learning to know me. Will you look at his wing again if I bring him over?"

"Sure thing. Now, maybe we'd better start the motor and head for shore."

Bill nodded in agreement, and soon their boat was nearing the landing dock. At their approach a flock of sandpipers took fright and flew a short distance away.

"Say," Bill exclaimed, staring after the birds as Dave shut off the motor, "the Professor hasn't told me anything about sandpipers, and we've never seen them nesting. Do you s'pose it's too late to find any of their nests?"

"I'm afraid so," the Professor's assistant answered, reaching for his crutches. "Most of those sandpipers are the advance guard of the great bird army that goes to Florida in the winter. They've already reared their families in the North."

"But there were spotted sandpipers here early in the summer," Bill objected. "I know, because I saw them. They were running along this very beach and whistling 'Peet-Weet! Peet-Weet!' "

"Of course you did," his friend smiled. "But the birds you saw early this summer have already moved south for the winter. By this time they are probably down on the coasts of Brazil and Peru."

"Then where did those birds nest?" Bill asked, pointing to the flock on the shore.

Pelicans plunge headfirst into the water

"In the far North," was the answer. "All sandpipers, except the spotted ones, prefer to nest in the North—up as far as Alaska—and come South in the fall."

Bill watched the sandpiper flock teetering along the beach, darting here and there, sometimes running ahead for a short distance, then taking wing and wheeling back to the place where they started. The little birds seemed unable to remain quiet for a moment, and all the time they kept up a shrill twittering, as if they were gossiping among themselves.

"They certainly look awfully small to fly so far," he remarked at last. "Most of those fellows aren't any bigger than sparrows."

"They are least sandpipers," Dave explained. "the smallest of the shore birds."

"How many kinds of sandpipers are there, anyhow?" Bill asked.

"About a hundred," Dave grinned, "but only half of them live in the United States. They belong to the *Limicolae*, or shore bird order. There are seven families in the order—the long-billed curlew is the largest, and those least sandpipers are the smallest."

"Did the plume hunters ever bother them?"

"No, but they are considered game birds, and gunners have shot a great many of them."

"But they're so small," Bill objected. "It would take an awful lot of them to make one mouthful."

"That's one reason why so many of them have been killed," Dave answered. "But hunting laws are stricter today, and the birds are carefully protected."

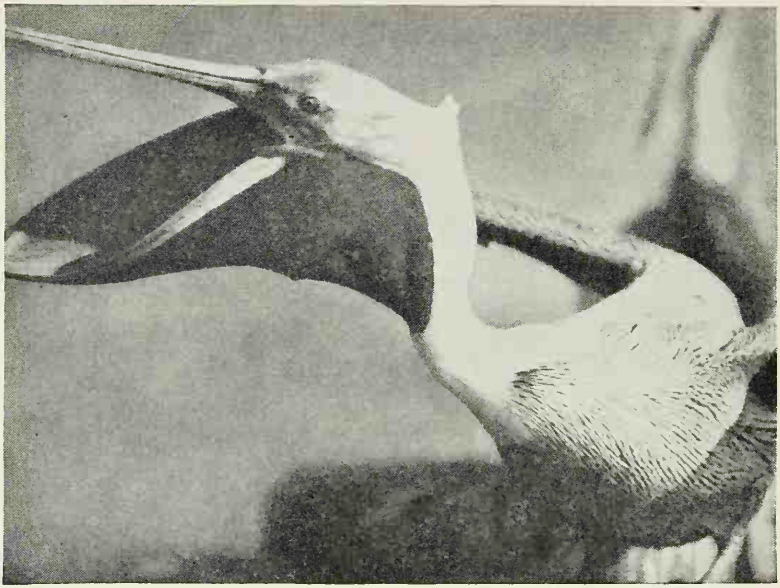
"What other birds, besides sandpipers and curlews, belong to the shore-bird order?" Bill asked. "You said there were seven families."

Dave chuckled.

"I won't tell you their scientific names, Bill, because their common names are hard enough. The seven families include the phalaropes; the avocets and stilts; the snipes, sandpipers, curlews, knots and woodcocks; the plovers; the surf birds and turnstones; the oyster catchers; and the jacanas. The jacanas are queer birds found only in Mexico and southern Texas."

"There are so many big names to remember," Bill sighed. "I don't see how I can ever learn enough of them to be an ornithologist."

"Of course you can," Dave Martin assured him. "Those names used to scare me when the Professor rolled them off his tongue. But I soon got used to doing it myself. I'll help you out now and then. You'll be surprised how easy it is."



Beaky lays down the law and demands something to eat

CHAPTER XX

GOOD-BY TO BEAKY

The summer days were speeding by so fast that Bill almost wished he could reach out and stop them. By this time most of the young birds had left their nests and were able to take care of themselves. The old birds looked ragged and tired, and some of them were already beginning to molt.

Even the birds that had reared several families during the summer were almost finished with their housekeeping duties. Bill's mockingbird friend was busy giving flying lessons to his fourth nestfull of

babies and, on their last visit to the pelicans' island rookery, Bill and the Professor had found only two or three birds that were still too young to fly.

When he wasn't helping the Professor and Dave Martin, Bill spent most of his time watching the injured pelican. As the Professor had predicted, the bird soon grew tame and friendly. In less than a week Bill was able to touch him and to stroke the soft feathers on his head without frightening him. In two weeks the big bird was waddling awkwardly after the boy, almost like a pet dog.

"Have you named the pelican yet?" Mr. Elliot asked one afternoon, looking up from his paper and grinning at the strange pair out under a palm tree.

"I call him Beaky," Bill answered. "Don't you think the name fits him pretty well?"

"It certainly does," agreed Bill's father. "In fact, I don't think you could find a more appropriate one. How's his appetite?"

"Don't mention appetite to me," Bill groaned. "I feed him a quart of fish every morning and every evening, but I don't think he ever gets filled up."

At first Bill bought minnows for Beaky at the fishing dock bait stand, but the pelican's appetite soon outgrew the boy's allowance, and Bill found himself on the verge of bankruptcy.

"Cap'n Tim's fishing partner charges an awful lot for his live bait, and Beaky's eating me out of house

and home," he confided to the sympathetic ears of Professor Weston and his assistant. "My allowance is supposed to last a week but Beaky has already eaten up more than half of it, and I've got to make it last four more days."

"Perhaps I could give you some financial assistance," the Professor suggested gravely. "I'd be glad to contribute to Beaky's upkeep."

"Thanks, but I'd rather figure it out for myself," Bill answered, frowning over the difficult problem. "There must be some way I can do it."

"If Beaky were only a cormorant instead of a pelican, you could tie a string around his leg and let him do his own fishing," the Professor said. "But I'm afraid that wouldn't work with a pelican."

"I guess I could rig up a hook and line and go fishing every day, myself," Bill answered thoughtfully. "But that would take too long, and I'd have to buy bait anyway."

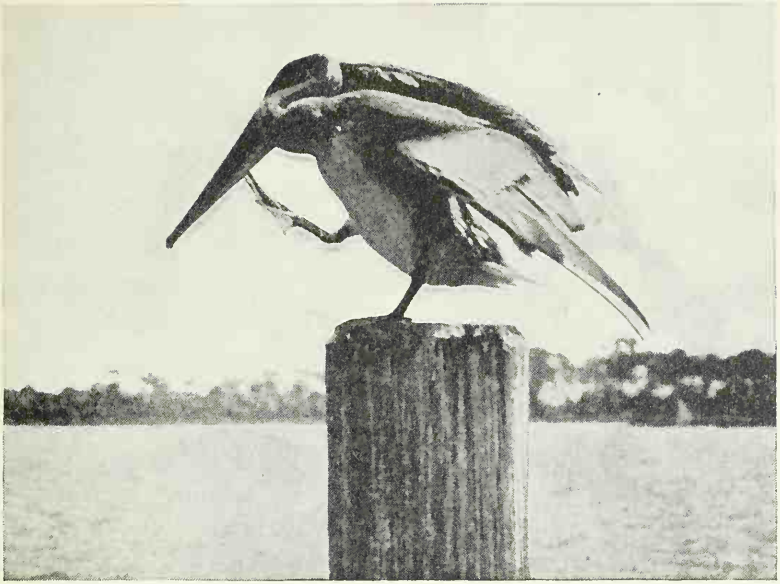
He was silent for a minute, then he banged his fist against his knee as a new idea struck him.

"I know," he cried. "I can make a dip net and catch all the minnows Beaky can eat."

"Good idea," nodded the Professor. "It's worth trying."

"Yes, and I'll help you make the net," said Dave.

The fish net solved the pelican food problem in a satisfactory manner. Two or three times every day



Beaky scratches a bite

Bill went down to the little pier where he kept his net. Beaky, who soon learned the reason for these trips, always waddled eagerly at Bill's heels. Beaky's big webbed feet were so pigeon-toed that the bird had to put one foot down and then step over it in order to walk. Apparently he found it hard to balance himself with only one wing.

As Bill picked the minnows out of the net one after another, the pelican would open his big beak and grab. Each fish had to go down head-first, Bill noticed and, on no condition would the pelican swallow them tail-first. Instead, he snapped his beak and tossed his head until the fish was turned in the right direction.

The sharp hook on the tip of his beak kept the minnow from sliding out while the bird was turning it around.

Dave Martin dressed the pelican's injured wing every second day, being careful to see that the broken bones were not disturbed. To do this, he always laid the bird out flat on its back. Beaky would lie motionless, watching Dave with his round, unblinking eyes, and Bill was sure that his pet understood everything that went on.

"The bones are knitting rapidly," the young man said one morning as he examined the wing. "I don't think Beaky will have a bit of trouble in flying when it is well. By this time next year he'll have forgotten that his wing was ever broken."

"How much longer will he have to wear the bandages?" Bill asked.

"Only a week or two," was the answer. "The break is practically mended now, but I think we'd better keep it protected for a while, to prevent accidents."

Bill turned to Professor Weston, who was seated in a deck chair under a palm tree, working on his notes.

"Do you suppose Beaky had a nest over on the rookery island this summer?" he asked. "I wonder if he was one of the birds we saw on any of our trips."

"I wouldn't be surprised," the ornithologist replied, looking up. "Probably most of the pelicans around here come from that rookery. Too bad he isn't banded, because then we could tell for sure."

"Say," the boy exclaimed, "we haven't banded him yet. Can we do it now?"

"Certainly," the Professor smiled. "Run in and get a band. The large ones are in the top, right-hand drawer of my desk."

In a short time Beaky was wearing a brand new aluminum bracelet around his right ankle. It didn't bother him in the least—in fact, he seemed rather proud of it.

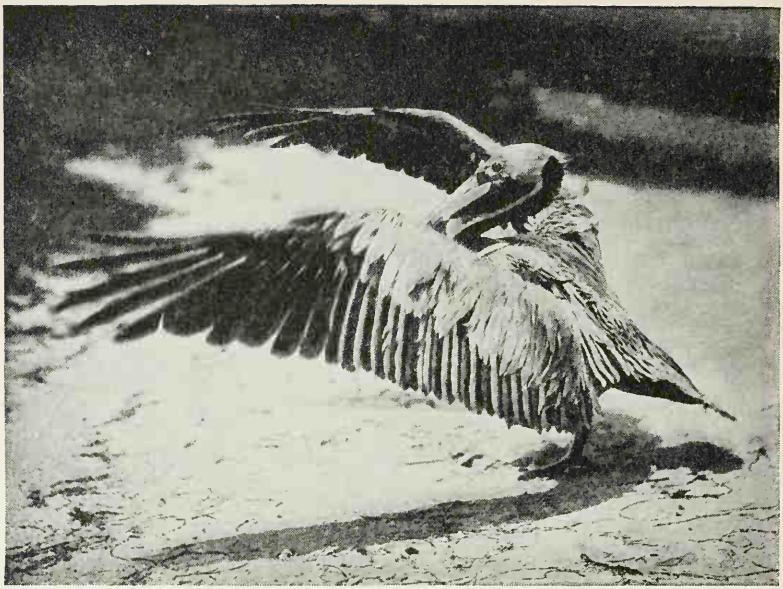
"Let's see," Bill said, stooping down to read the figures engraved on the band. "His number is 810486. That's pretty long—longer than a telephone number. But I guess I can remember it."

The Professor nodded.

"Beaky's number is more important than any telephone number, though."

The summer days sped by even more swiftly than before. Professor Weston and Dave Martin spent a great deal of time working on the bird bander's notes and papers, but Bill did not have time to get lonesome. As Beaky's wing healed, his appetite seemed to grow even larger than before. The minnows had apparently discovered the reason for Bill's net because they grew wary, and the boy had to work harder than ever to catch them.

"I don't know what I'm going to do when school starts," Bill told his friends one afternoon. "Keeping



Beaky could never be happy on the ground

Beaky fed is almost an all-day job, and lessons take so much time. I wish summer would last forever."

Professor Weston smiled.

"I do too," he agreed as he nodded his head. "It won't be long before I have to go back to the university—classes and school work are just as hard on us teachers as they are on you students."

"You mean you're going to leave soon?" Bill gasped. The white-bearded man had become so much a part of life at the beach that Bill just hated the idea of being without him.

"I'm afraid so," the bird bander answered. "I must leave the day after tomorrow. I'm going to miss you,

Bill, and all the good times we've had together. Don't forget, though, that proposition for you to study to become my assistant."

Bill turned to Dave Martin.

"Are you going back, too?" he demanded.

The young man shook his head.

"No, it has been arranged for me to stay here this winter. I wouldn't be much use around a laboratory with these wooden legs of mine," he pointed to the crutches lying on the porch beside him, "so, instead of going to college, I'm to study the birds that spend the winter in Florida, making records for the ornithological department. I'll need lots of help, Bill, because I won't be able to get around very well for a while yet. Will you help me when your school work doesn't keep you too busy?"

"You bet I will," Bill answered eagerly.

"That's fine," Professor Weston said. "Dave can teach you a great deal while you are helping him. Your mother and father and I have talked over the idea of your becoming my assistant some day. They have agreed to let you come to the college when you are ready."

"Just wait 'till the kids at school find out that I'm going to be an ornithologist," Bill's eyes gleamed with anticipation."That word will make their eyes pop out."

"What about Beaky?" Dave Martin asked. "Are you going to try to keep him this winter?"

That reminded Bill about his troubles, and he sat with his chin on his fists and his elbows on his knees. His forehead was wrinkled into a thoughtful frown. For a long time he did not answer.

"I guess I'll have to let him go," he said at last, heaving a deep sigh. "I hate to do it, but I guess there's nothing else to do."

The Professor laid a friendly hand on the boy's shoulder.

"Yes, I think so too," he said, while Dave Martin nodded in silent agreement. "After all, Beaky is a wild creature and he wouldn't be happy as a prisoner. When Dave takes the bandages off his wing tomorrow, Beaky will be able to fly. After that, the only way you could keep him would be to clip his wing feathers. I don't think you would want to do that. If Beaky were a young bird, it would be different. But he is several years old, and when a bird has known the freedom of the skies and the sea for that long, he can never be very happy on the ground. Do you see what I mean, Bill?"

Bill nodded gloomily.

"Yes, I see. But it's going to be hard, losing both you and Beaky at almost the same time. I wish you didn't have to go back to that old university."

"Won't I partly make up for the loss?" Dave Martin grinned. "I might even let you feed me a fish if you get too lonesome."

At last . . . Beaky waddled slowly out into the water

"That's a promise," Bill answered, smiling again.

Next morning Bill, his father and mother, with the Professor and Dave Martin, all went down to the beach to say good-by to Beaky. When they reached the shore, Dave removed the bandages, felt the wing, and nodded.

"It's as good as ever, Beaky," he said. "I hope you've learned not to fly into telephone wires. You might not be so lucky the next time you try it."

"Good-by, Beaky," Bill said, stroking the bird's head. "I'm going to miss you."

At first the big bird did not seem to realize that he was free. For several minutes he stood on the beach ruffling his feathers and looking at the waves. At last he waddled slowly out into the water and began swimming. He plunged his long beak into the water, filling his big pouch and waggling his brown tail as if he were glad to be afloat once more. He swam farther and farther from shore.

"Gee, do you suppose he has forgotten how to fly?" Bill asked. "Maybe his wing isn't healed after all."

Just at that moment the pelican spread his broad wings, pushed himself forward and flew a short distance. Then he settled back into the water once more.

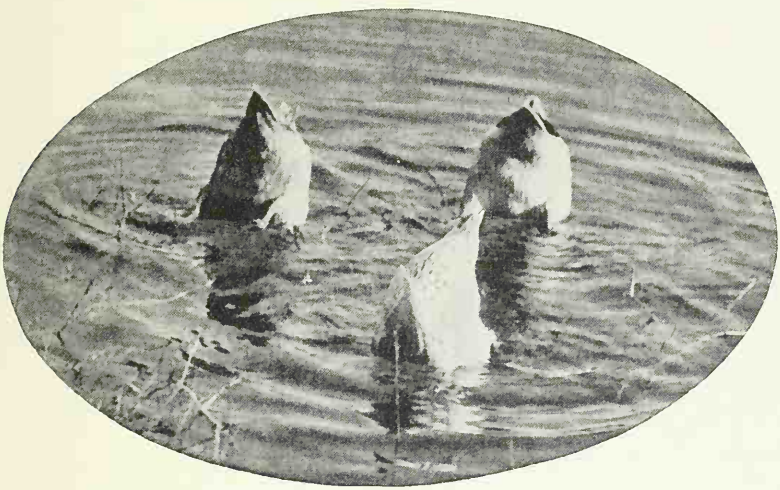
"His wings are probably stiff and weak from disuse, and he is taking it gradually," the Professor said.

After several more trial flights, Beaky took off for good, flying with steady, even sweeps of his wings.

The group on the beach watched him until at last he disappeared into the distance.

"Well, he's gone," Bill sighed, drawing a deep breath. "But at least he is banded, and I'll know him if I ever see him again. I certainly have learned a lot this summer."

Junius Weston looked pleased. "At least you're on your way to becoming Professor Elliott!" he said.



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